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ABSTRACT

This monograph, based on college transcripts of 10,700 students included in the National Longitudinal Study of the High School Class of 1972 (NLS-72), examines how culturally literate is the generation that is now in its thirties and what people in that generation studied that exposed them to different cultures, societies, and intellectual traditions. Findings determined that the amount of time spent on studying standard college subjects dwarfed the amount of time spent on studying all other cultural information combined. Also, exposure to cultural literacies other than that of western societies was extremely limited, and the bulk of this exposure to western traditions was confined to introductory-level courses. Additionally, the extent to which a student was exposed to cultural information was largely determined by his/her major. Recommendations are provided to students on how to approach, judge, and act upon their academic choices in light of the many requests and requirements from commissions, accreditation bodies, and faculty senates to study certain subjects. Contains 66 references. (GLR)

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TOURISTS IN OUR OWN LAND

Cultural Literacies and the College Curriculum

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Acknowledgments

This monograph developed, in fits and starts, over a period of 2 1/2 years, and was set aside a number of times while other studies in this series were completed. During that period, the various versions and drafts were read by a number of colleagues, friends, and total strangers—all of whom were kind enough to spend the time with the text and to offer insightful criticisms and helpful suggestions. I am particularly grateful, in this account, to my Department of Education colleagues John Burkett, Joe Conaty, Buddy Karelis, and Robin Sampson; to Jeff Thomas of the National Endowment for the Humanities, Gerald Graff of the University of Chicago, Bettina Huber of the Modern Language Association of America, Ted Marchese of the American Association for Higher Education, and Maris Vinovskis of the University of Michigan; and, as always, to Nabeel Alsalam of the National Center for Education Statistics, and my in-house publisher and editor, Cynthia Dorfman and Margery Martin. For a number of obvious reasons, this is a tough document, and required the faith and support of my supervisors: Milt Goldberg, former Director of the Office of Research, and Diane Ravitch, Assistant Secretary for Educational Research and Improvement. They may not have agreed with all of the analyses in these pages, but both of them believe strongly in supporting creative and disciplined exploration of national archives such as the NLS–72.

Tourists in Our Own Land:
Cultural Literacies and the College Curriculum

Executive Summary

[This is the fourth* in a series of monographs based on the data archives of the National Longitudinal Study of the High School Class of 1972 (NLS-72). The NLS-72 followed a generation of Americans from high school into their early thirties. The Base Year (1972) Survey sample consisted of 22,652 students for whom high school records and test scores were also recorded. Followup surveys were conducted in 1973, 1974, 1976, 1979, and 1986. Most importantly for this study, the postsecondary transcripts of 12,599 individuals in the sample who attended any kind of school or college at any time between 1972 and 1984 are also included in the archives.]

How culturally literate is the generation that is now "thirtysomething"? What did people in that generation study that exposed them to different cultures, societies, and intellectual traditions? Why are these important questions?

The college transcripts of 10,700 students in the High School Class of 1972 who had earned more than 10 college credits by 1984 were examined to provide some clues. That 12-year period gave these students plenty of time to finish college (about half of them did), and to immerse themselves in hundreds of courses providing different kinds of cultural information.

The study first describes what "cultural information" seems to mean in the scholarly literature, how its acquisition is very much like learning a language, how more than one "language" is at stake, and why acquiring information is only the first step to true literacy. Focusing attention on college students also requires us to understand how colleges function as an information system, and how the topics pursued by professors in their research only gradually enter the curriculum and the classroom.

As sources of information on what college students actually study, national transcript samples (such as that of the NLS-72) are preferred to surveys of catalogues, course schedules, and deans because transcripts are more current, reliable, and honest and show us what really happened (course syllabi and assessments would provide more detail, but they are not accessible). The results of some noted surveys of deans are matched against the transcript evidence to drive home this point. No matter what the subject (history, Western civilization,

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*The others, along with the U.S. Government Printing Office stock numbers are: *Light and Shadows on College Athletes* (1990), #065-000-00348-1; *Women at Thirtysomething: Paradoxes of Attainment* (1991), #065-000-00451-8; and *The Way We Are: the Community College as American Thermometer* (1992), #065-000-00482-8. They are available, at very modest cost, from the Superintendent of Documents, Washington, D.C. 20402-3238. Phone: (202) 783-3238.

math, literature, foreign language, women's studies), students study more of it than the catalogues and deans say students are required to study.

There are three determinate configurations of cultural information evident in the transcript records: Western culture and society, non-Western culture and society, and minority and women's studies. There are also two configurations of courses in which cultural information is either general or indeterminate: one in the humanities, the other in the social sciences. By looking carefully at student course-taking patterns in these course clusters, the study concludes that:

- The sheer amount of time this generation spent studying accounting, physical education, nursing, and electrical circuits, for example, dwarfs the amount of time it spent in all the streams of cultural information put together;

- This generation's exposure to cultural literacies other than that of Western societies was extremely limited, and the bulk of its exposure to Western traditions was confined to introductory-level courses;

- Doctoral degree-granting institutions were the principal providers of information on non-Western culture and society, while comprehensive colleges were the principal providers of information on domestic minority cultures;

- The curriculum of students at elite colleges (3% of all bachelor's degrees in the NLS-72) is so different from that followed by the other 97% that it is irrelevant to discussions of the diffusion of cultural information;

- Demography is curricular destiny both in expected and unexpected ways: as an example of the expected, women comprised 80% of enrollments in Women's Studies courses; as an example of the unexpected, white students were *less* likely than minority students to study history of any kind.

The student is central to this analysis, for it is the student who has been bombarded with requests and requirements from commissions, accreditation bodies, and faculty senates to study this or that. What are today's students to learn from the experience of the NLS-72 generation in the face of all these urgings? The monograph concludes with recommendations to students on how to approach their academic choices so that they become more than tourists in their own land.

Tourists in Our Own Land:
Cultural Literacies and the College Curriculum

I. Cultural Literacy: A Diffusion Question

"Education and culture are not yet on speaking terms in our country," wrote Frank Lloyd Wright in *The Living City*. A lifelong curmudgeon, Wright had a knack for encapsulating social criticism in a sentence, and for offering what appear to be flippant observations that nonetheless endure.

Current arguments about what students should know of various aspects of our culture and how that knowledge should be provided can be enlightened considerably by the longitudinal studies of three cohorts that have been carefully assembled by the National Center for Education Statistics over the past two decades. The records of the oldest of these cohorts are complete enough now to show that, on the surface, Wright may still be right: if we define "culture" in terms of the humanities disciplines, narrowly construed, that "culture" hasn't penetrated too far through formal educational channels. But when the definition of "culture" is cast in terms that admit history and its materials, anthropology, and other social sciences, the pattern of diffusion of knowledge is somewhat more encouraging.

To set the paths and parameters clear at the outset, my purpose in this paper is to use the 14 years (1972-1986) of records, surveys and (most importantly) college transcripts from the National Longitudinal Study of the High School Class of 1972 to explore the role of higher education in the diffusion of cultural information to a generation—or, more accurately, to the half of the generation that went to college. In the process, I will pay particular attention to undergraduate student enrollment, course completions, and earned credits in three clusters of courses dealing with:

- Western culture and society;
- Non-Western culture and society; and
- Ethnic and gender studies.

This exploration is framed by some notions concerning language and society, and about higher education—its institutions and disciplines—as an information system. This approach, with empirical transcript data at its core, should shed a different kind of light on debates about curriculum and culture that have persisted in various forms for the past 20 years, but that have recently become dim and acrimonious.

Because the NLS–72 archive was designed more than 20 years ago, without reference to contemporary culture wars, it has no axe to grind. It is what social scientists call an "unobtrusive" source (Webb 1966). Its validity stands on a stronger toe than does that of contemporary surveys with loaded questions. Some readers will not like the data in this archive, but the numbers are resilient, and tell a clear story.

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The NLS–72 began with a national sample of 22,652 students representing nearly 3 million high school seniors. The archive includes the high school records of all those students, test scores, a base year survey, five follow-up surveys with response rates of 88% and higher (in 1973, 1974, 1976, 1979, and 1986), and the college transcripts for 12,599 of those students who attended any kind of postsecondary institution by 1984, when they were 30 or 31 years old. As noted in the previous monographs in this series[1], the NLS–72 is the richest archive ever assembled on a generation of Americans, and what makes it truly unique is its Postsecondary Education Transcript Sample (hereafter referred to as the NLS/PETS).

The NLS–72 will not be unique for long. By the time this monograph is published, similar data, including college transcripts, will have been gathered for the High School Class of 1982 through 1992 (when they were 28 or 29 years old). In the lexicon of longitudinal studies, this group is known as the High School and Beyond/Sophomore Cohort. By the time this monograph is published, too, the cohort forming the third longitudinal study in this series, the High School Class of 1992 (or most of it, anyway), will have recently walked down the graduation line.[2] We are setting the stage for magnificent time-series data, provided that we continue to follow these cohorts.

Readers of these pages who react by asserting that "it's all different today" must wait until these subsequent generations have left archives that are truly parallel to that of the NLS–72 before their assertion can be known for sure. There will be differences, but I would not hazard a guess as to how large or significant those differences will be. No group of 18-year-olds can take pills to turn themselves into 30-year-olds overnight, with histories, just because we are impatient for current data. In longitudinal studies, data are neither current nor instant.

This Topic Has Become Contentious

The subject of the diffusion of cultural information and knowledge sounded fairly neutral when I first embarked on this inquiry. To be sure, there were intense debates that marked the introduction of ethnic studies, women's studies, and third world studies courses and majors in the U.S. higher education in the late 1960s and early 1970s. And intense debates followed the calls of national commissions for more coherence and/or attention to tradition in the college curriculum in the mid-1980s (Bennett 1984; Association of American Colleges 1985). But the more recent forms of these arguments have become vituperative at times, initially as a result of the mass marketing of two very different books that were perversely yoked together in so many reviews and commentaries since they were published in 1987: Allan Bloom's *The Closing of the American Mind* and E.D. Hirsch, Jr.'s *Cultural Literacy*.

Bloom's book is a philosopher's lament for a lost past, filled with anecdotes, fragmentary analyses of contemporary cultural phenomena such as college students' favorite books, feminism, and rock music, a less fragmentary exposition of the origins of relativism in 19th and 20th century intellectual history, a railing against modern science, social science and economics (particularly in "serious universities"), tales of student radicalism at the same "serious universities" in the 1960s, and a brief plea for study of the "great books." As befits a rationalist's polemic, there are no references or data. There are some very eloquent paragraphs. The book was a best-seller.

Hirsch's *Cultural Literacy*, on the other hand, is an empirically-based, future-oriented analysis focused on the process by which we learn to read, and is rather specific and detailed in its recommendations for improving curriculum in primary and secondary schools, in all subjects and for all students (not just those who are likely to attend "serious universities"). It does not lament a lost anything, does not enter special pleas for "great books," and insists that "cultural revision is one of our best traditions" in the U.S. (p. 101). While I will elaborate on this in a moment, the point here is that Hirsch's book is radically different from Bloom's, far more constructive, and far more relevant to formal education.

Since 1987, the very idea of cultural information has been wrapped up in sloganistic notions of "cultural diversity" and "multiculturalism" that often mask discordant realities. College faculty and school officials are calling each other names that most folks don't understand, doing so in journals that most folks don't read, and tying themselves in rhetorical knots over what Wayne Booth once called "fake polarities" (Booth 1981). The mainstream media, reporting on all of this, focus more on the polemical writings and speeches of the combatants, their tenure and salary status, and their organizational affiliations than on what is taught—hence diffused—in real classrooms. When the personal becomes the political, temperatures are bound to rise. They are bound to rise even further when they are tied up with campus speech codes, campus hate crimes, discrimination suits, and affirmative action policies. At that point, most commentators have lost touch with the issue.

One reviewer of the draft of this monograph asked whether it is valid to try to illuminate the current darkness with data generated by an age group that went to college between 1972 and 1986. The question should be raised and explicitly answered at the outset: yes. Why? Because both the books and commission reports that have played prominent roles in these arguments were themselves grounded in observations of trends in mass culture and education of the earlier period:

- Allan Bloom's touchstones of the decline and shallowness of American culture and education in *The Closing of the American Mind* include the rise and "fade" of Mick Jagger, the film "Kramer v. Kramer" (1979), schools "filled with teachers who are products of the sixties and reflecting the pallor of university-level humanities" (p. 65), and Woodstock (1969). None of these are last week or last year, and all are within the formal schooling years of the High School Class of 1972.

- William Bennett's essay on the state of the humanities in higher education, *To Reclaim a Legacy*, uses high school curriculum trends from 1969 to 1981, college curriculum trends from 1966 through 1983, and degrees conferred between 1970 and 1982 as foils in its presentation and argument.

- The Association of American Colleges formed the committee that produced *Integrity in the College Curriculum* in 1982 on the basis of dissatisfaction with the fragmentation of undergraduate education during the previous decade.

All of these reference points overlap or coincide with the data examined in this monograph.

Yes, the tone and terms of the argument may have changed over the years, but what we feel as a long term is but a moment. To say that there is a conflict between a 1984 observation and 1979 data is, in the perspective of history, silly.

Cultural Information

What is cultural information? It is information that reveals or conveys to us the mental habits, attitudes, prejudices, values, moral commitments, aesthetic preferences, and aspirations—in addition to constitutional arrangements, political histories, social customs, publicly accessible technologies, and economic organizations—of particular societies (Weintraub 1966). At the same time, it does not include the technical information of basic science for which special languages are necessary (Levin 1967) or the specifics of vocational practice that are generally inaccessible to non-practitioners. The former is transcultural; the latter tend to be arcane.

So defined, cultural information is *not* confined to artifacts and activities subject to aesthetic judgment or found exclusively in printed books and museums, nor is the diffusion of cultural information the sole province of the humanities. When one thinks of how the vastness and complexity of this information is to be conveyed, our institutions of formal education, schools and colleges, come instantly to mind. How, then, could Frank Lloyd Wright possibly be right, for education and culture must be on speaking terms to get the job done? What could he possibly mean?

Let's take one simple case—perhaps too simple—from the high school records and college transcripts in the NLS–72 archives. Let the study of foreign languages represent a formal conveyance of cultural information, and the study of basic science represent a formal conveyance of information that, in essence, is more transcultural than "cultural." What percentage of the 732,500 high school graduates from the High School Class of 1972 who earned bachelor's degrees by the time they were 30 or 31 years old managed to get through *both* high school *and* college (a) without studying one moment of foreign language, on the one hand, and science[3], on the other; and (b) with studying a minimum amount (no more than 1 year in high school and no more than 1 year in college) in both areas?

Percent of B.A.s who did minimal coursework in high school and college in foreign language and science

	Took no courses in high school		**Took only 1 year in high school**	
Number of College Credits	**For. Lang**	**Science**	**For. Lang.**	**Science**
0	14.3%	0.7%	16.1%	2.6%
1-4	1.9	0.9	2.5	3.7
5-8*	1.8	1.9	2.5	5.2
Total:	**18.0%**	**3.5%**	**21.1%**	**11.5%**

* The equivalent of one course for 1 year in college.

This table itself conveys cultural information in that it says something about what we value as a society: what our educational institutions allow us to choose, and what, in fact, we do choose. Over the course of 8 academic years, some 39.1 percent of the people who earned bachelor's degrees in the United States did minimal to no work in a language other than English. Over the same period of time, 15 percent of credentialled students did minimal to no work in basic science. These ratios would be unthinkable in other advanced industrial countries.[4]

The issue is not whether we should be pleased or upset at the percentages in this half-empty glass presentation (we could also invert the table, and show the half-full glass), or, for example, whether 1 year (5-8 credits) of college-level laboratory science is sufficient for non-science majors. Rather, the hypothesis that emerges from the data is that our system of education values scientific knowledge more than cultural information about societies that do not share our language.

In a world less conscious of its complexity, the world in which Wright lived and worked, simple presentations such as the table above would have been sufficient to make his case. But the diffusion of cultural information through formal education is both more complex and of a different order: it's about language, reading, and memory. Before we count heads at the college level, it would be helpful to review these relationships.

II. Culture, Language, and Memory

Wright, who died in 1959, obviously did not read E. D. Hirsch's *Cultural Literacy* (1987) or ponder the implications of its widely publicized list of over 5,000 terms, names and phrases that "literate Americans [should] know." But in that volume he would find a rationale for his judgment. Hirsch's work is grounded in serious scholarship concerning how we learn to read, how national languages are sustained, how the cultures of six continents ensure their continuity by transmitting stocks of information to their young, and in research demonstrating that "part of language skill is content skill" (Hirsch 1983).[5]

Supradialects and Language Stores

Hirsch's "list" was seen by many as an attempt to standardize the basic elements of the shorthand we use to communicate, hence what should be utilized in school and college instruction. Hirsch would say that the "list" reflects what is empirically present in a "national vocabulary" that is used every day in newspapers and on television without explanation, for example (a random dozen):

> "Sink or swim
> Sioux Indians
> Sirens, the
> Sistine Chapel
> Sisyphus
> sitcom (situation comedy)
> sit-ins
> sit on the fence
> Sitting Bull
> skepticism
> Skinner, B. F.
> skin of your teeth" (Hirsch, 204),

and what he advocates is for schools to make sure that their students can read the newspapers in which such phrases, terms, and names appear. In the hot debates that followed publication of *Cultural Literacy*, both critics and defenders assumed that the "list" would have considerable impact on education.

What Hirsch was doing might be understood better with a sociolinguistic analogy: in the process of its development, any nation will come to accept one form of language spoken within its borders as a "supradialectical norm" (Ferguson 1968). Where there are minority language cultures and a mainstream culture that requires unification and efficiency through a common language, as Joshua Fishman (1971) observed, the mainstream culture and its language has historically prevailed in most nations where the situation existed. In describing these cases, Fishman points out that people learn "the language of their functional polity" while maintaining "the language of their intimacy" (Fishman 1976, p.49). This paradigm exists in the United States, where national language policy, implicit in dozens of statutes, seeks to protect and preserve minority languages and cultures as supplements to the supradialect (Grant 1978).

Critics who described Hirsch's goal as promoting "the nationalization of knowledge" (Ross 1989) or "American facts" (Kohl 1989) might think again if they looked at the history of languages. From that perspective, Hirsch is simply illustrating a "supradialectical norm" in an unquestionably multi-dialectical society. The "supradialectical norm" consists of more than the language system of American English. It involves particular words, phrases, names, and numbers that are commonly used to access key concepts of the material and spiritual life that surrounds us.

The same type of analysis would hold for other countries in which more than one language or dialect is spoken. In societies in which Spanish or Swahili or Arabic or Russian or Turkish is the dominant language, there will also be a "nationalization of knowledge" that flows from the nature of those languages and their positions in the polities in which they are dominant (Rustow 1968). Every polity has a "national vocabulary" that has been determined by its history. We are not alone.

Why raise this notion of supradialect at the beginning of an inquiry on college curriculum? And why go back to Hirsch after the fires of protest over his work have died down?

Because our arguments over curriculum are normative—they are phrased in terms of the question: out of the vast universe of knowledge, what *should* you know? Because colleges, more than primary and secondary schools, open up the full range of that universe of knowledge. Because college students choose a large part of what they study. Because the process of learning—in whatever corners of the universe of knowledge college students choose—rests on a store of language one brings to the learning situation. Because education functions largely to expand that store of language, and through the expansion, enables individuals to participate more fully in our society, culture, and economy. Because we expect of college graduates as full a participation as possible, and because in our time, that participation must transcend our own national borders.

Expanding our stores of language requires (a) mastering the "supradialect," including its accessible scientific and technical territory, and (b) including other "dialects" in our learning. With that expansion, "cultural literacy" renders us more efficient producers, disseminators, and users of knowledge. It is an advanced form of language learning. Hirsch's work reminds us how this happens, and how it could happen better. While it stresses the "empowerment" of the individual, it also echoes Fritz Machlup's more utilitarian ideas of knowledge production as an economic activity (Machlup 1980): the more people who possess a large store of language, the more knowledge we can produce, and the more knowledge we can produce, the wealthier our society. In a post-industrial economy dominated by information, everybody benefits.

Schemata and Scaffolding

But let's think about the issue for a moment simply in terms of empowering individuals the way learning *any* language would empower us. The ideas informing *Cultural Literacy* derive from a school of research on reading that emphasizes structures or "schemata" by which our memory organizes and stores massive amounts of information. As they exist in our memory, these structures, collectively, have been called "scaffolding." The scaffolding of memory enables us to build meaning when we read a text, and not merely to decode it (Anderson 1977). Whether the mode of communication is written or oral, the memory structures we use to advance from mechanical decoding to full understanding contain "world information" (Chall 1983). The more of this "world information" you have, the better you are able to process new information received through any medium. The more you possess, the more you can create new schemata for yourself by "tuning" or "restructuring" what you already hold (Rumelhart 1980; Rumelhart and Norman 1977).

The more "world information" you possess, for example, the more you can laugh at the allusive banter of late night television hosts such as Arsenio Hall or David Letterman, or a deft film script such as Steve Martin's *L.A. Story*. This is not a new story. Humor is a product of empowerment, and enriches the life of any society. When we laugh together, we are less likely to confront each other in anger. People who know nothing from Shakespeare laugh less at a showing of *L.A. Story* than people who do. Comparatively and figuratively speaking, the space of their lives is a smidgen smaller. The point remains the same even when one changes the movie and its allusions. And it remains the same if one changes the culture and the language of the movie and its allusions.

Default Settings and Sirens

Another way of describing this very basic cognitive phenomenon of schemata uses a computer analogy. In comprehension of unfamiliar material—let alone in ordinary discourse about the relatively familiar—we all have a stock of memory that functions like a "default" setting on a computer. That is, in the absence of other clues, we refer to a basic known value (Minsky 1975). This default setting does not operate in isolated and highly focused representations. It is not activated by a "fill-in-the-blank" task on a test. It is not involved in trivial pursuit games. Rather, the defaults come into play when one is faced with the challenge of organizing and comprehending a *sequence* of information—including information drawn from a task or text, and the environment of that task or text.

The reader of the previous paragraph is able to understand it, in part, because in the 1990s, the schema elicited by the term, "default setting," has become pervasive or "democratic" or supradialectical enough to justify the use of the word in a text such as this. As a term derived from technology, it is accessible. Furthermore, I hope I provided enough contextual information to activate this schema as opposed to other notions of "default." As recently as 10 years ago, one could not comfortably write that paragraph for a general audience. But there is now a critical mass of people in the U.S. workforce, from secretaries to school teachers to warehouse clerks to graphic artists, who have been trained to use computers, and who possess a schema for "default."

What about schemata that are grounded explicitly in the "supradialect" of American English, and not in a technological vocabulary that would be accessible in other cultures? Let's take an item from the random dozen terms listed on page 6 above: "Sirens, the." Assume a newspaper article or television commentary about any situation in which a person or group of people, confronted with a critical decision, are tempted with alluring extremes. They can go one way or another, or, more painfully, resist the temptations. For purposes of both shorthand and dramatizing the situation, the newspaper writer or television commentator refers to the temptations as "the Sirens." How do we know that the word, "Sirens," does *not* refer to police sirens or fire truck sirens? On what are we drawing to understand what is being said? A dictionary definition? Would the same word—and its conceptual scheme—be used in other languages in the same situation?

There is no question, in this case, that we are drawing on a story that is widely known and widely used in *Western* cultures. The word, "Sirens," with this particular cultural evocation, exists in other Western languages: German, Spanish, French, for example. Native speakers of English, *wherever* they are found (North America, the Caribbean, Oceana, the British Isles), are not alone in being able to use the word, "Sirens," in this way, though in other languages the evocation is not always stimulated by a noun (in German, for example, the adjective, "sirenenhaft," is used to mean "bewitching" or "seductive"). The concept is "supradialectical" in a way that cuts across national boundaries and is accessible to over a billion people, no small number.

At the same time, of course, the word does not exist with this particular cultural evocation, with this particular schema, in Arabic, Hindi, or Chinese, for example. Why should it? It does not derive from a story in the core mythologies of cultures in which those languages are spoken, though I suspect there may be analogous stories in those mythologies, hence, words that can evoke a similar "schema" among native speakers of those languages who know those stories. Native speakers of those languages who do *not* know those stories are in a position similar to the movie-goer in St. Louis who watches *L.A. Story* with no Shakespeare.

Lists and Language Space

Hirsch's list is essentially a selection of defaults or schemata from the supradialect. A list is always a hazardous undertaking and invites contention, even when it can change, and even when it does not pretend to be complete. But Hirsch's point, in part, is that our tendency to emphasize skills—and not content—in schools conveniently avoids any contentiousness whatsoever. When we elevate skills over content in teaching, we fail to expand our students' language space. And little that students do outside of school—save the quality of conversation in the home that is heavily influenced by socioeconomic status—is likely to expand that language space significantly.

Understanding references in a list such as Hirsch presented, though, is not complete understanding because the references are encountered in the contexts of conversations, texts, and visual presentations—all of which offer other clues to help students construct meaning (Resnick 1984). Context, in fact, underscores the difference between mere information and the higher order we call knowledge. As Wayne Booth pointed out in a critique of Hirsch's work, even in cultures that require their children to memorize large bodies of material, what is disseminated is more than information, more than what Machlup terms "disconnected events or facts" (Booth 1988). The children are immersed in a stream of stories and sagas and oral editorials and discoveries, all of which convey the touchstones, totems, and values of the societies into which they will grow.

In short, there is context for the content, and without that context, there is no motivation to become engaged, to search further, to question. We know that knowledge is diffused—as opposed to disseminated—in our society when people can recognize, use, and act upon innovations, that is, departures from existing patterns of experience. The recognition, use, and action depend upon more than mere information, but without the information, the recognition of what is a departure, what is change, is itself problematic.

Indeed, virtually all scholars of cognitive processes in reading will acknowledge the outlines of Hirsch's story, but regard it as incomplete. In fact, some of those who objected to his prescribed list then advanced their own, rival lists (cf. Simonson and Walker 1988) and unwittingly conceded the basic point: without an expanding stock of information, individuals do not know where to search further or what to question. Analogy, Hirsch insists, is at the core of good teaching and learning (Hirsch 1989), and by its very nature, analogy requires default settings, reference points in information.

III. Information Systems, Colleges, and "the Canon"

When one places some of these notions in the context of higher education, they take on added complexities. While the educational implications of Hirsch's work devolve principally on schools, the subject of the college curriculum inevitably arises because the college curriculum assumes a basic "scaffolding," assumes a plot of language space that can be cultivated, and assumes that students will use the scaffolding of their memories to search further and question. More important to our understanding of why college curricula look the way they look at any moment in time is the fact that colleges are responsible for discovering and preserving knowledge through research and scholarship in addition to diffusing it through instruction. The organization and acculturation of the academic workforce is thus key to understanding how college curricula work.

In this context, the entire industry of higher education in the United States and other countries already diffuses cultural information, and, in effect, "nationalizes knowledge" (indeed, "internationalizes" knowledge). In *Invisible Colleges* (1972), Diana Crane argued convincingly that the social system of the academic disciplines functions to produce and disseminate consensus on learning, though, as Anthony Becher has recently demonstrated, the extent of that dissemination varies widely by the dominant mode of academic work in a field (Becher 1989). Humanities faculty, for example, Becher notes, work in a "rural" mode, compared to the "urban" organization of large-scale physical science. Professors of literature or philosophy are lonely scholars, largely isolated from each other in their work. They tackle a wide variety of problems and questions, whereas research in a field such as high-energy physics involves teams of people working on a small number of key questions. Consensus is hard to come by under rural circumstances.

Even so, the broad definitions of the knowledge worth having are often expounded to the general public through professional and learned societies and their journals and pamphlets (Todorov 1989). These organizations draw their authority to issue such normative statements because they are part of an information system that is responsible for the creation and flow of knowledge (Dupree 1976). The visible colleges, too, function as part of the information system of disciplines, since they provide a home and resources to the faculty who generate and disseminate knowledge.

From this organization of academic work arises a difference between "the scholarly and the pedagogical canon" (Mueller 1989) that is important for judging arguments over what stores of cultural knowledge should be taught. The "scholarly canon" refers to the range of accepted topics or problems studied by professors in their research. That is what they were trained to do in graduate school, and that is what the bureaucracy of their disciplines rewards. The "pedagogical canon" refers to the range of materials and treatments they use in instruction, the range of course topics reflected in the archives of generations passing through college.

Practitioners of an academic discipline do not always agree on what the discipline should be about, on what major questions or problems it should address. In each discipline, Diana Crane pointed out, scholars feed on the areas or problems or methods opened up by seminal questions and texts. Sometimes, a new theory is taken for granted and simply used over and over again in analyses of problems or texts (Seamon 1989)—at least until the next theory is announced. What also happens, as Gerald Holton (1962) demonstrated, is that just at the moment when scholarly work on a question is exhausted, the materials, methodologies and topics of that work are established and influential enough to make their way into the college classroom and the pedagogical canon. This transformation from research to mass instruction occurs as much in the humanities and social sciences as it does in basic science.

For example, as ways of interpreting literary texts, the New Criticism, psychologism, Marxist analysis, and historicism all represent communities whose influence reached its peak when they had analyzed virtually every major text from their perspective. Each school of criticism, in its turn, became what Kuhn (1960) called "normal science" (that is, to put it crudely, the accepted way of doing things) and at that point entered the classroom. At that point, too, each was challenged in the "scholarly canon" by its successor. As Alexander Nehamas observed, the reception given to deconstruction in literary criticism in the 1980s was not unlike that given to the New Criticism in the 1940s (Nehamas 1987). So what we see in the records of one generation of students may be different from the pedagogical canon of the succeeding generation. In the terms of this study, what is true for the Class of '72 may not be true for the Class of '82.

Beyond academic factions, some fields in the humanities change in scope, develop new paradigms. They recognize new "problems" and advance in the same manner as Kuhn demonstrated science to advance. Philosophy is a good example, and an obvious one in intellectual history. Ernst Cassirer observed the phenomenon in *The Logic of the Humanities* (Cassirer 1966): for the ancients, he wrote, logic, physics, and ethics defined philosophy. That definition dominated until the 19th century, when the post-Kantian Romantics found a way to account for "the world of history and culture," the world of the spirit beyond moral philosophy. By so doing, they opened up mythology, history, language, and law as legitimate fields of philosophical inquiry, and changed the boundaries of the discipline. That paradigm shift was gradually reflected in university instruction.

Earlier in the 20th century, the boundaries of history were pushed by the French *Annales* school into geography, meteorology, demography, and epidemiology. Even though the *Annales* school is no longer dominant, its "new theoretical conception of . . . where the boundaries of historical subject matter should be drawn" (Becher 1989, p. 49) resulted in a fundamental "alteration of the principles of mapping" culture and society (Geertz 1980) and a considerable expansion of the territory covered in college history curricula. But it took two generations for this to happen.

Cultural Information by Osmosis

In colleges themselves, the organized dissemination of cultural information takes place through a great deal more than pedagogical canons. Considered as communities, colleges provide cultural information through public television programming, through student activities such as drama, film festivals, and literary magazines, through special colloquia and conferences, through "unofficial" courses, and so forth. None of these involve formal course-taking, and all of them are features of college life that have historically made campuses vibrant. Attendance and participation do not generate any records. College students can learn a great deal about history, the arts, and literature on their own. And more and more, in fact, college-student learning about cultural diversity in the U.S. takes place outside the formal curriculum, as institutions establish discussion groups and encounters (Daniels 1991). Of course, the larger and more complex the institution, the greater the range of potential cultural exposure.

However much colleges, as communities, act like cultural information systems in their everyday lives, we usually measure and discuss these matters in the lives of college students with respect to the formal curriculum. What we can learn from the NLS–72 database—more than anywhere else—is who studied how much of what and where with respect to various classes of cultural information. Common sense empiricism suggests that the chances one will expand any part of one's language space are higher if one successfully completes formal courses in subjects that embrace those spaces, and, in the process, develops new stores of discrete information. As Alexander Astin has frequently observed in his research on college student development, you learn what you study (Astin 1984), and a number of investigations using the Graduate Record Examinations have supported this observation (Wilson 1985; Ratcliff 1990). Whether formal coursework at the college level also increases the chance that students will transform information into knowledge, search further, and question is something we really don't know, rather we take on faith.

IV. The Validity of Unobtrusive Sources: Catalogues, Syllabi, Assessments, and Transcripts

There are seven types of documents one can use in estimating the nature and extent of the cultural information passed to a generation of college students through formal coursework: college catalogues, course schedules, enrollment surveys, course syllabi, tests and other assessments given in individual courses, *de facto* national examinations, and student transcripts. Each has its virtues and limitations.

Because some of these documents are cited often in arguments about curriculum, we should spend some time understanding their validity as sources of information. This is more than a technical issue.

The Catalogue Rule

One of the tropes in the rhetorical fire fights over the contemporary college curriculum involves the citation of college catalogue rules and their consequences. The critic's objective is often to find the most outlandish examples of what courses a student *could* take in order to fulfill various graduation requirements, and then to extract the more extreme, jargonistic, or convoluted portions of syllabi for some of those courses. A statement such as

> "a student can fulfill core requirements at Harvard by studying tuberculosis from 1842 to 1952, and distributive requirements at Dartmouth with 'Sexuality and Writing,' which analyzes 'the use of sexuality and its ramifications as symbols for the process of literary creativity, with particular reference to. . . [sic] potency and creative fertility; marriage or adultery and literary sterility; deviation and/or solitude and autobiography; prostitution and history; chastity and literary self-referentiality.' " (Cheney 1990, p. 31)

is typical of this kind of criticism. Leaving aside the notion that what the 15,000 undergraduates enrolled at Harvard and Dartmouth study is generally irrelevant to the 11 million undergraduates enrolled in less elite institutions, the statement is derived from analyses of catalogue requirements.

One could be more devastating by listing all the courses that satisfy physical education requirements in U.S. colleges—including bowling, jogging, billiards, yoga, scuba diving, and fly-casting—and do so without telling your reader whether these courses carry full credits, fractions of credits or no credits.[6] It's easy to take advantage of catalogues for propaganda. I confess to doing my share of it.

More generally, critics seek to outrage us with statistics on the number of institutions that allow their students to graduate without studying X (foreign language, math, English literature, history, etc.). While counting institutions is not as convincing as counting affected students[7], the point is that this rhetoric, too, assumes that the college catalogue—or the Dean's account of the catalogue—reflects the norms of student course-taking behavior.

Actually, the college catalogue better reflects the "trailing norms" of faculty politics. The catalogues are written 3 years before you read them, and the standards they set forth for the academic content of degrees were determined by faculty senates a year before that. So, in a catalogue, one is usually reading something that is 4 years old (and, given the dynamics of curricular change, out of date within a year of publication). When he was Dean of Arts and Sciences at the University of Texas, John Silber astutely remarked that the catalogue is the university's contribution to American fiction, and ought to be placed on appropriate shelves in the library.

Catalogues have their virtues, though. They are official statements of institutional intent, and are very public. One can use them to mark long-term changes in curriculum, both in terms of particular fields and college graduation requirements (Dressel and DeLisle 1969; Toombs *et al* 1989). They reflect the birth, growth, mutation, and decline of disciplines, and the changing values and missions of different types of colleges.

But we never know whether the courses listed in a catalogue were actually offered, let alone taught, whether more than a dozen students actually took them, or, in the case cited above, whether "Tuberculosis, 1842-1952" was a case study in biostatistics, quantitative history, or demography (hardly worthy of derision in any of those cases).

The Course Schedule

When the reference of analysis is an individual course or group of courses, the catalogue is not a reliable source of information. Only in combination with a course schedule would we know whether the courses were actually offered. Course schedules will also indicate how extensive and frequent those offerings were. Was the course a seminar for 15 students offered every other year, a lecture for 100 students offered only once by a visiting professor, or a 12-section course for 300 students each semester? Was registration restricted to majors or folks who had passed through 6 prerequisite courses, or was it open to all? Course schedules usually include such information. "Tuberculosis, 1842-1952," for example, may have been limited to students who had previously taken both one statistics course and "Introduction to Epidemiology." Exactly 6 students out of 12,600 in the NLS–72 Postsecondary Education Transcript Sample (NLS/PETS) would have met those prerequisites as undergraduates.

Course schedules, however, also have limitations. In too many cases, we never know whether the courses were actually taught (simply because it's in the course schedule does not mean that enough students registered to justify a "go"), or whether more than a dozen students out of 11 million undergraduates in the United States actually took them.

Surveys of Deans and Enrollment Surveys

What about surveys of deans as a source of information on what college students study? These are probably more unreliable than catalogue surveys. We tend to be overly indulgent of these surveys, accepting them under the logical fallacy known as the "appeal to authority," that is, if the Dean says so, it has to be true. Our public discourse values the bureaucracy of the academic information system over the behavior of real students.

Levine and Cureton's (1992) curriculum survey of chief academic officers is typical in its naivete about information retrieved in this manner. I was once an Associate Dean, and probably typical in my desire to make the college look however the college was supposed to look according to the survey. If the survey came to the Academic Vice President, I sometimes filled it out. At other times, the Registrar filled it out. Or the Director of Institutional Research. It depended on who was around and had the time. The Vice President trusted our knowledge and judgment, but there was no faculty senate or review committee to screen our responses, as there would have been for a catalogue. I would not trust a Registrar to know whether "new [multicultural] material [was] added to existing courses" (Levine and Cureton, p. 26), let alone how often, because registrars do not track syllabi. Unfortunately, data from such surveys are presented, for example, in Levine and Cureton, as "facts."

Enrollment surveys filled out by department chairs fall in a similar bin. Some disciplinary groups, for example, the Association of Departments of Foreign Languages or the Mathematical Sciences Education Board, are more diligent about collecting such data than others. But we know from the NLS–72 transcripts that there is an overall gap of 11 percent between enrollments and completions, and that this gap is greater in some courses and fields than others.[8] People drop out of courses at various times: some register but never show up; some show up the first week and then disappear; some stick around until the local "no penalty" drop deadline; and others stay right to the end but fail to take the final exam or pass in the final project. We have no way of knowing precisely when someone dropped a course, thus how much exposure they really had to the subject matter; and it is hardly likely that department chairs would spend their time keeping track of such data. Given the potential variations, we have no choice but to adopt, as a national rule of thumb, that someone who enrolls in but does not complete a course cannot be counted among learners of that particular subject matter.

There is another problem with enrollment surveys that is usually acknowledged only in the fine print of footnotes. Enrollment surveys do not count students. They count enrollments, and enrollments at a given point in time, for example, Fall Semester, 1988. The biennial reports of undergraduate humanities course enrollments prepared for the National Endowment for the Humanities (e.g., Lewis and Farris 1990) are typical of these.

There are three problems with the methodology used in enrollment surveys. First, as Lewis and Farris are careful to note, the same student, enrolling in two or three courses in history, is counted two or three times. The more majors there are in a field, the more likely the enrollments in that field are inflated. Second, the counts usually occur in the Fall Semester, because that is when Federal reporting under the Integrated Postsecondary Education Data System (IPEDS) is due. If one is interested in student enrollment in particular courses, it will thus appear as if the vast majority take what is recognized as the first semester of a two-semester sequence, for example, U.S. History to 1865 (as opposed to U.S. History from 1865 to the present), or Microeconomics (as opposed to Macroeconomics). Third, because the survey is taken at a particular point in time and double-counts students, one has no idea of the percentage of students who take a course in a field at any time during their college careers. The patina of statistics in an enrollment survey pretends to tell us something; but it is difficult to determine what we're being told.

Syllabi and Assessments

The syllabus brings one closer to the empirical reality of what may actually be taught or read, and, indeed, content analyses of syllabi in specific courses—including texts and other course materials—would provide grist for the history of the disciplines and the changing shape of received knowledge. The syllabus is the instructor's statement of intent, and in this is analogous to a catalogue. Its virtue lies in its detail, but the content and degree of detail in syllabi vary widely—even within the same multiple section course. There is no nationally standardized way of writing or presenting a syllabus, and no reading public for syllabi beyond students in a particular classroom during a particular term.

Catalogues are public and widely disseminated; syllabi are not. Often, the syllabus is submitted for the initial approval of a course. While the course may change, the original document sits in a file drawer of approved courses and is subsequently examined (if at all) only by visiting accreditation teams. In other instances, the syllabus is not followed or the class moves too slowly to complete it. In courses with multiple sections, a core syllabus will receive different interpretations. The document is thus both "fugitive" (you first have to chase it down in somebody's file drawer) and unreliable.

Course assessments—assignments, tests, projects, papers, exhibits, oral presentations, simulations, computer exercises—would be a better indication of specific expectations for student learning, hence, one assumes, of what was actually studied (an assessment is not valid unless students have the prior opportunity to study what it assesses). Despite small scale analyses of assessments in individual disciplines (e.g., Tribe and Tribe 1988; Warren 1989), no one has ever performed a large-scale comparative analysis of assessment content, form, and practice.

De Facto National Tests

The only long-term, reliable data we possess on college student learning in specific disciplines come from the Graduate Record Examination (GRE) Subject Area tests. These differ rather dramatically from the other potential sources of information on the nature and extent of student learning. Looking at student performance on individual tests, for exaple, History, French, Political Science or Literature in English, and using proper metrics of interpretation, one can determine general trends (long-term and shorter-term) in subject-matter achievement (Adelman 1985; Stern and Chandler 1988).

But there are severe limitations to using the GRE Subject Area tests to measure the flow of cultural information and its impact. Most obvious among these is the relatively small number of college students who take the Subject Area tests and the fact that they are highly self-selected (Grandy 1984). Even at the height of application to graduate schools in the early 1970s, only 125,000 people took the Subject Area tests compared to 300,000 who took the GRE General Examination compared to 800,000-900,000 bachelor's degrees conferred annually. The samples in individual fields, even then, were too small for national analysis (11,500 in History; 15,000 in English; 6,100 in Political Science, etc.), are smaller today, and are smaller, still, because we cannot sort out the foreign students who take the Subject Area tests (whereas we can sort foreign and domestic student performance on the GRE General Exam).

Less obvious, but more important, are some of the psychometric aspects of the tests. The content of each exam is set by a national advisory board of professors from each discipline, but is not generalizable. That is, the content of a test in history, for example, may not reflect the actual undergraudate history curriculum as delivered at many institutions, and may not reflect the history courses students actually take at those institutions (Adelman 1989). The content of the exam reflects a "core" conception of a field, around which there are many variations. Given the way scores are reported, it's tough to connect evidence of student knowledge to the diffusion of that knowledge through a formal curriculum. The scores are reported on a scale (and no two GRE Subject Area Tests use the same scale); and the best one can do is to obtain sub-test raw scores where they are available.

Even then, if you knew that 40 percent of the students who took the Political Science exam were correct on more than half of the 40 questions that could be grouped as a sub-test in comparative political systems (out of 170 questions for the whole exam), what could you make of that knowledge? That we don't teach comparative politics well in U.S. higher education? That students don't take courses in comparative politics? That the students who took the test didn't learn their comparative politics very well even if they did take courses in the field? And since the field of comparative politics is cross-cultural, does the distribution of sub-test scores mean that cultural information is not getting through? All those possibilities are open. Test scores of this sort are inaccessible to interpretation.

Transcripts

Transcripts are another matter. As economists would say, they are neither leading nor trailing, rather "concurrent" indicators. They constitute *general* empirical evidence of what courses were actually taken irrespective of what the catalogue or course schedules said. If there weren't enough enrollees to justify a course, then you won't find that course on a transcript. And while the catalogue rules may allow you to earn a bachelor's degree without studying history, the transcript will show whether or not you actually studied history at any time in your college career—whether it took you 4, 8, or 12 years to earn your degree, and whether you studied history in a fall semester, spring semester, or some other time period. The transcript will also show the kind of history you studied, and whether you completed the course, hence whether you can be counted among the learners of that kind of history. The transcript can show how many courses in history you took, how many credits you earned, and when you did all of this. No, it won't say what you read, what was otherwise taught—or how. But it will show for sure what you did, and even provide a general guide—via your grade in the course—as to how well you did it.

In her foreword to *50 Hours* (an otherwise challenging proposal for a core curriculum for college students), Lynne Cheney of the National Endowment for the Humanities used a survey of institutions[9] to indicate the percentage of 4-year *colleges* from which it was possible to graduate without having taken a course in six areas: history of Western civilization, history, English or American literature, foreign language, math, and "natural and physical sciences." (Cheney 1989) The following table matches the detailed findings of that survey (which are not to be found in *50 Hours*, rather in Lewis and Farris 1989) against the empirical evidence of the NLS–72 transcripts. The transcript data show the percentage of *students* from the High School Class of 1972 who (a) earned a bachelor's degree at any time between 1972 and 1984 and (b) did *not* earn any credits in four of those six fields:[10]

Graduation requirements v. course-taking

	Percent of colleges from which it was possible to graduate in 1984 without a course in:	**Percent of NLS–72 students who earned a B.A. but no credits (1972–84) in courses in:**
History	42.0	26.2
English or American literature	48.0	39.6 [1](32.2)
Foreign language	80.0	58.4
Mathematics	54.0	[2]30.8

[1] *All* literature taught in English.
[2] College-level math and statistics only. No pre-collegiate or remedial math included.

However distressing the transcript data, what is obvious in all four cases is that *student* course-taking behavior exceeds putatively "official" minimums, at least among those who received bachelor's degrees (those who earned less than a bachelor's degree could not be included in the comparison). The differences between minimum guidelines and maximum behavior in history, foreign languages, and math/statistics are particularly striking. Even if one expects student course-taking to exceed catalogue standards, it would not be by such margins. Transcripts don't deal in possibilities, rather actualities.

For another example, here is an excerpt from a 1985 survey of general education requirements by the Carnegie Foundation for the Advancement of Teaching (Carnegie 1992)[11] set against actual undergraduate course-taking of NLS/PETS students through 1984:

General education requirements v. course-taking

	Percent of institutions requiring at least one course in 1985	Percent of NLS–72 students[1] earning at least 3 credits, 1972–84
Western civilization	48.5	70.6
Non-Western culture and society[2]	7.9	9.3
Women's studies	1.6	3.5

[1] All students who earned at least 10 undergraduate credits from 2-year and/or 4-year institutions.
[2] Called "Third World Studies" in the Carnegie data.

Once again, the unobtrusive national evidence of student course-taking behavior is at odds with reported institutional policy. To be sure, some policies could be recent while the student behavior reported here antedates those policies. But the differences are too large for such a comfortable analysis. Colleges don't "get religion" overnight.

V. Elaborating on What Transcripts Do

Transcripts can take us beyond such gross data to some common-sense questions such as whether and why this very general coursetaking behavior differs by student major and type of institution. What we find out is that students who graduate from liberal arts colleges are more likely to take courses in history, foreign languages, and English/American literature than students who graduate from either doctoral degree-granting institutions or comprehensive colleges. At the same time, they are less likely to study college-level math or science and engineering:

Percentage of bachelor's degree recipients who earned no credits in[1]

Type of institution	History	Foreign language	Eng. or Amer. lit.	Math[2]	Science & engineering
Universities	32	55	42	27	8
Comprehensive colleges	23	64	38	33	9
Liberal Arts colleges	20	43	32	38	14

[1] See tables 2–6 for more detail on credit distribution.
[2] College-level math only, including statistics.

The reason is that liberal arts colleges generally do not offer degrees in professional fields such as engineering or occupational fields such as accounting, whereas the larger, more curricularly diverse institutions do. Most U.S. undergraduates attend large institutions, and most undergraduate degrees are *not* in traditional arts and sciences fields (see Appendix A). The requirements for degrees in professional and occupational fields are such as to leave preciously little time for anything else. Engineering majors, for example, are the least likely to study history (see table 2), foreign languages (table 3), or English or American Literature (table 4). The same kind of analysis could be applied to majors in music education, nursing, and accounting. For example, if one wished to major in Music Education (indeed, any "professional" degree in music), 65 percent of the bachelor's degree program is already prescribed in music and education courses.[12] And prior to 1991, a major in Accounting *might* have been able to get away with only 45 percent of his/her coursework prescribed in business administration, economics, accounting, and math.[13] To blame the universities or the state colleges for the negative consequences of offering such degrees is aiming the arrow in the wrong direction. The "villains" are requirements for accreditation in specialized fields. The critics should know better.

In fact, in light of calls from both sides of the barricades for new core curricula, we cannot have either Cheney's *50 Hours* or more than fragments of non-Western or multicultural studies as long as 50 percent of bachelors' degrees and 67 percent of associate's degrees are being awarded in occupational fields, as long as the accreditation/certification requirements in most of those fields eat up as many credit hours as they do, and as long as students attempt to assemble a record that will provide them with multiple skills and knowledges for a mutable economy.

The Demography of General Course-Taking Behavior

A closer examination of the data on the general course-taking of bachelor's degree recipients, as presented in tables 2–6, raises a theme that bears pursuit when we come to deal with specific sources of cultural information: there is often a correlation between who you are, in terms of background characteristics, and what you study. These relationships are not inevitable. They are written in neither stone nor genes. But they are observable. In some cases, they can be explained; in others, not. For example:

- White bachelor's degree students in the NLS–72 sample were *less likely* (73 percent) to study history than either black (81 percent) or Hispanic (80 percent) BAs (table 2):

  Partial explanation: a higher proportion of white students majored in engineering and the sciences; a higher proportion of minority students majored in the social sciences and education.[14] Engineering and science majors are less likely to study history than majors in social sciences (which include history) and education.

- Black BAs in the NLS–72 were *more likely* (67 percent) to study English and American literature than either white (60 percent) or Hispanic (56 percent) BAs (table 4).

  Partial explanation: 65 percent of the black students who earned BAs took a course in Afro-American literature. Usually, these are upper-division courses with prerequisites of at least one introductory course in English/American literature.

- Not only were women BAs *more likely* (48 percent) than men (36 percent) to study foreign languages (table 3), but were more likely to persist to advanced levels.

  Partial Explanation: A far higher percentage of women than men took more than 2 years of foreign language in high school, therefore were well on the road to advanced levels. (Adelman 1991)

- While women studied much less math in college than did men (table 5), their credit distribution in science and engineering was remarkably similar (table 6).

Partial Explanation: women comprised an overwhelming proportion (80 percent) of nursing and allied health majors, two fields that usually require a minimum of 3–4 courses in biology and chemistry.

My point about all of this is that student backgrounds involve academic "momentum" that carries from high school into college, and that student major directs this momentum into certain curricular channels. This is hardly a surprising finding, yet it is strangely absent from contemporary discussions of who gets how much "multicultural" education (e.g., Levine 1992).

Culture in the Back Seat

When we use transcripts as guides to mapping the diffusion of cultural information, we learn that the majority of students' academic time is spent acquiring information and skills that are either generic, psychomotor, or devoid of any *prima facie* cultural and social information, and/or that are designed to produce occupational competence. The sheer amount of time the generation of the NLS–72 spent studying accounting, marketing, physical education, nursing, and basic electrical circuits, for example, absolutely dwarfs the amount of time it spent in the formal streams of explicitly cultural information—whether we define culture in terms of the artifacts and texts of the humanities or as the totality of material and spiritual life.

How do we know? Let's take all the undergraduate credits earned by bachelor's degree recipients in the NLS–72 over a period of 12 years. Those credits represent a total investment of academic time. Then, let's identify the courses in the 1,037 course category taxonomy derived from the NLS–72 transcript sample that provided *explicit* cultural information of various kinds, and aggregate the percentage of credits earned (time spent) in those courses into larger categories:

	Percent of total undergraduate credits earned by NLS–72 B.A. recipients in all courses providing explicit cultural information:
Historical/Political Studies	6.6
Fine Arts[15]	4.5
Sociological Fields	4.4
Literary Studies in English	4.2
Philosophical and Religious	4.0
Foreign Language and Linguistics	3.3
Anthropological	1.1
Other Explicitly Cultural Studies	3.2
Total	**31.3%**

In other words, almost 70 percent of the total academic time spent by this generation in college did not have, as its primary objective, encounter with explicitly cultural information. One can always argue that cultural information is implicit in virtually every course taught in a college, from Macroeconomics to Interior Decorating to Animal Behavior to Forest Management. Learning how to operate a television camera or to treat athletic injuries or to use an air brush in graphic design or to compute tax liabilities *may* convey, in each case, some cultural information. The presence of that information in the execution of those tasks, however, is highly problematic. Yet those tasks—and others—are what the mass of students in U.S. colleges, community colleges, and universities spend the mass of their time learning. No, they don't spend their time that way at Harvard or Dartmouth or Stanford.[16] But they do spend their time that way just about everywhere else; and "everywhere else" accounts for 98 percent of U.S. undergraduates. The languages learned by such curricular experience connect these students more to economic activity, narrowly construed, than to the contexts of economic activity, broadly construed. As the table above demonstrates, culture takes a back seat in college.

VI. Five Cultural Literacies

Up to this point, we have been referring to broad categories of cultural information. But the interests of contemporary discussion lie in more discrete curricular categories than, for example, "history." It's time to use the NLS/PETS transcripts to describe what college students study in finer detail. In the process, we will circle through the data twice, each pass from a different perspective.

While there may be a "primary" store of references we use in our everyday language that allows for short-cuts and abbreviations in mass communication, there are secondary stores that allow demographic, cultural-interest, and specialist sub-groups to communicate in similar ways. In presenting the postsecondary curricular experience of the Class of 1972, I am proposing five stores of information that are derived from transcript evidence: the "supradialectical" cultural language as described by Hirsch, and other "dialects" or stores of language corresponding to demographic, cultural-interest, and specialist sub-groups. These five "dialects" are not mutually exclusive in essence, rather competing in the finite time of undergraduate education. More of X always means less of Y when the full glass measures 120 credits, and when credits are proxies for time.

The five stores of information in the NLS–72 archive are represented by course clusters in:

1. Western culture and society, which, in turn, is divided into introductory and "advanced" components.

2. Non-Western culture and society (a cluster defined by academic specialist interests).

3. Minority and women's studies (a cluster defined by demographic categories).

4. Courses in the traditional humanities disciplines that provided general cultural information, or those that could not easily be assigned to one of the other categories.

5. Courses in the social science disciplines that provided general cultural information, or those that could not easily be assigned to one of the other categories.

The content of these clusters, listed in table 1, was empirically derived from the combination of literal course titles, *a priori* decision rules, and the revised taxonomy of the 1985 edition of the *Classification of Instructional Programs* (CIP) as described in *A College Course Map* (Adelman 1990)[17]. No, they do not include basic science, even though a basic scientific vocabulary is part of the kind of supradialectical literacy that is necessary for individuals to negotiate a contemporary culture that is dominated by scientific and technical questions (Miller 1983). But they do include the history of science under the "Western" culture and society configuration, and Science, Technology and Society (STS) courses under the cluster in general cultural information/social sciences on the grounds that courses in these categories will include the cultural determinants of scientific theory and understanding.

Consequences of Taxonomy

In two of these clusters, the revised taxonomy may slightly skew the estimates of participation. In both the cluster covering "non-Western culture and society" and that covering "advanced Western culture and society" there is a significant representation of foreign language courses. The study of foreign languages at the elementary and intermediate levels does not necessarily provide cultural information. Where it does, in the case of European languages, the information is not likely to be different from that which students acquire in history or geography courses. In fact, the level of information is more likely to be that of a high school history or geography course. But among the less-commonly-taught languages, the non-European languages represent significant border-crossings for students, and inherently open new doors of perception. They do so principally by utilizing systems of representation other than a Romanized alphabet (to be sure, so do both Russian and Greek). Even in elementary and intermediate level courses in Chinese, for example, the very construction of a character in the written language has historical and cultural determinants that are very likely to be taught. Hence, such courses are included in the Non-Western Culture and Society cluster. On the other hand, only advanced language, literature, and linguistics courses in European languages are included in the Western configuration.[18]

There are actually two "Western culture and society" clusters. The first consists of introductory or survey courses such as "Western Civ" or "World Literature" (table 9), and I comment more about that cluster below. The second, which is our principal interest, covers courses beyond the basics. This cluster may understate the full measure of immersion in Western cultural information because of ambiguities that remain in the taxonomy of courses in the areas of religion and theology. The former was conceived as covering the secular study of religion in the context of the liberal arts, even if that study took place in a denominational college or university. The latter exists in the *Classification of Instructional Programs* taxonomy to cover the study of specific religious doctrine, practices, etc., for those training in seminaries to become ministers, rabbis, and priests.

This guiding distinction did not always work in the assignment of course titles. There is no question that specialized institutions (read "seminaries") accounted for an inordinate percentage of cases under the various Theology course codes, and far less under the Religion codes. For that reason, in part, I did not include any of the Theology titles except "Bible Studies" in the Advanced Western Culture and Society cluster.

As for Religion, when the transcripts were originally coded, there was one and only one code for the whole field. I subsequently disaggregated the field, sorting the roughly 2000 titles in the transcript sample into seven (7) categories, of which only three—Non-Western Religions, Christianity, and Judaism—could be assigned unambiguously to a cultural literacy cluster. Courses in the other categories may have drawn exclusively on Western religious traditions, but one could not determine that from the titles. For our purposes, they were placed in the cluster, "General Culture and Society: Humanities and Arts."

General or Indeterminate?

The course clusters labelled, "General Culture and Society," are largely residual categories, and are presented for the record more than for analysis. Let's look at the cluster for the Social Sciences first (table 1, Part 6). Any course in anthropology, for example, will expose students to a great deal of information about culture. Some of these courses are clearly either non-Western or Western in orientation. Others cover material that crosses the cultures of six continents; others deal in ethnographic methodologies that are indispensable to the study of culture. Allied to anthropology in this regard are courses in human shelter and clothing/dress offered in Home Economics departments, linguistics, and some sociology courses (e.g., rural sociology, sociology of aging, etc.). And it is very difficult to get through an introductory Geography course at the college level without considering the cultural and social dimensions and impacts of climate, trade routes, navigable waterways, and so forth. But it is equally hard to place any of these courses in the other categories: they transcend particular places and peoples.

The "General Culture and Society: Humanities and Arts" cluster (table 1, Part 5) covers the provinces of the reflective and creative aspects of culture, of ideas and theory and the modes through which ideas and emotions are expressed. One might assume that the content of the courses taught in these categories is drawn from the "supradialect" of Western thought, but the case is not clear. It is tough to teach a course in folklore, mythology, history of religions, history of dance, history of folk music, or political theory and stay wholly within Euro-American references. And philosophical questions such as those of ethics, art, epistemology, or religion cannot be called "minority," "Western," or "non-Western" with any degree of certainty.

No doubt some readers will quarrel with the classification of some course categories here. But if we're trying to distinguish the specific content from the indeterminate, we really have little choice. Musical performance and studio art courses, for example, are not included anywhere, not only because the titles (e.g., "Class Woodwinds" or "3-D Drawing") do not provide any hints of specific cultural content, but also because the principle objectives of such courses are to perfect technique, not to acquire cultural knowledge. Does one pick up cultural information in an introductory class piano course, for example, where the texts are standard Hanon, Blues Hanon, Jazz Hanon, or all three? That depends on how it's all taught. The case is far more explicit in a music history course.

I do not pretend that these five clusters cover the entire range of cultural literacies. Nor do I pretend to know precisely what was taught in the courses comprising these clusters and how it was taught, and whether it was taught in ways that encouraged active learning and engagement. We do not know, in fact, whether the students were demonstrably literate as a result. And the degree of our ignorance is greater with reference to the "General or Indeterminate" clusters.

On the other hand, we can make more reasonable assumptions about the content and process of immersion in intermediate and advanced-level elective courses than we can about broad surveys and required introductions to the disciplines: the water is deeper, and the opportunity to transform information to knowledge greater. Hence, in these analyses, I have selected the data principally from realms beyond the introductory, and focus on three "determinate" cultural literacy clusters: minority and women's studies, non-Western culture and society, and "advanced" Western culture and society.

"Distinctly Labelled" Courses

The course taxonomy includes categories for various minority cultural studies in addition to courses in traditional academic departments that one expects would deal with non-Western cultures or Third World topics (e.g., an Anthropology course in the "Cultures of Sub-Saharan Africa" or a Geography course on the "Economic Geography of the Andean Nations")[19]. Though it derives from a national sample of transcripts, the taxonomy can be criticized as highlighting only cultural information that is distinctly labelled, not learning that is integrated in more general courses and curricula. The criticism has some merit, even though all specialized courses (e.g., polymer chemistry, psycholinguistics, operations research, and so forth) are "distinctly labelled." Indeed, in the taxonomy used in this study, all history courses are "distinctly labelled."

It has been argued that, in American colleges, "the elevation of [ethnic] difference undermines the communal impulse by making each group foreign and inaccessible to others" (Steele 1989), and there is no doubt that the vast majorities of the NLS–72 students taking "distinctly labelled" cultural studies courses were members of the groups so labelled (see "The Demography of Enrollments," below). Thus, it appears that students from other groups did not experience the same focused transmission of cultural information. I admit to speculation about this, but students from other groups may not have been wholly welcomed into "distinctly labelled" ethnic and gender studies courses or departments. If people are not welcomed, if they are thus inaccessible to each other, the chances are less that they will be freed from prejudice (Geertz 1986).

On the other hand, as the criticism of the taxonomy implies, we may not be so inaccessible to each other. The courses in the General or Indeterminate categories include a diversity of cultural information that a transcript cannot capture. How much diversity is simply unknown on a national scale. Such are the limitations of transcripts that only national samples of syllabi and assessments could overcome.

VII. Who Takes What, Where, and (Maybe) Why

With few exceptions—all of them falling in the two clusters of general or indeterminate content—few people in the NLS–72 cohort completed courses in any of these clusters except "Advanced" Western Culture and Society, and even there, the percentages are small compared to those courses that seem to define the "core curriculum" for bachelor's degree holders in this generation.[20]

What strikes one about this list (on page 29) is that it is dominated by introductions to those social science/humanities disciplines that are not normally taught in secondary school, i.e., psychology, sociology, economics, philosophy, communications, art history, along with mathematics courses that, if offered in secondary schools, do not always meet college-level standards of content.

In addition, unlike the lists for the cultural literacy clusters, many of the courses on this list are required, and virtually all are prerequisites to something else. No wonder the percentage of students taking them was rather high; no wonder they account for nearly one-quarter of the total undergraduate time (using credits as proxies for time) of those who earned bachelor's degrees in the NLS–72 generation.

The empirical core curriculum of bachelor's degree recipients

	Percent of students	Percent of credits
English Comp: Regular	73.6	3.0
General Psychology	69.7	1.9
Introduction to Sociology	49.9	1.3
General Biology	47.3	2.0
Introduction to Economics	44.8	1.6
U.S. History Surveys*	42.1	1.6
U.S. Government & Politics*	35.9	1.1
Intro. to Communications	35.8	0.9
General Chemistry	35.5	1.9
Literature: Introduction*	31.1	1.0
Calculus	30.4	2.0
Western/World Civilization*	29.3	1.2
General Physics	26.3	1.5
Developmental Psychology	25.6	0.8
Statistics (Math)	23.3	0.7
American Literature**	23.1	0.8
Introduction to Accounting	23.0	1.0
Intro. to Philosophy	22.8	0.5
Art History**	22.2	0.8
Educational Psychology	21.5	0.6
Business Law	20.2	0.7

* These courses are included in the Introductory Western Culture and Society cluster.
**These courses are included in the Advanced Western Culture and Society cluster.

But if roughly one out of five bachelor's degree holders studied accounting, only one out of 20 studied European history since 1789, only one out of 50 was exposed to any topic dealing with Native Americans, and only one out of 100 studied jazz history or Afro-American music, then no matter how we define cultural information, no matter what store of language to which we refer, its diffusion was limited. Based on the records of their coursework alone, college graduates of this cohort are far more likely to use the term, "leveraged buy-out" in a conversation (even as a metaphor) than "Waterloo," "shaman," or "riff."

To be sure, there are course categories on the above list that provide students with considerable exposure to major concepts, texts, and chronicles of U.S. and European origin. But these categories—Western civilization, U.S. government, U.S. history surveys, introduction to literature—all cover territory previously traversed in secondary schools and usually required for high school graduation. They have been sorted into the "Introductory Western Culture and Society" cluster. The college-level versions of these topics may be more sophisticated, may encompass more material, or may be simply different in their approach. In these respects, they reinforce the store of language and references to which students have been exposed, but the only way we could determine that they measurably expand that store would be through a very elaborate and expensive national assessment. The course categories in the "Advanced Western Culture and Society" cluster, however, are far more likely to be college-level expansions of the stock.

Philosophy is a different case. Assuming that an "introduction to philosophy" course emphasizes the logical apparatus of the discipline, it may enhance cultural literacy by enabling students to build knowledge out of information, to take what Hirsch calls a "hazy" collection of touchstone terms and turn them into clear frameworks for understanding. To be sure, philosophers develop analytic and deductive thinking muscles by addressing specific kinds of questions, such as whether words reflect or create reality or whether one's conscience is a witness or a judge. In the process of these exercises, philosophy professors may introduce students to the ways in which seminal thinkers or different cultures have dealt with these questions. But there is no guarantee that they will do so in an introductory course, as opposed to, for example, an upper division course in, let us say, epistemology.

Table 1 also reveals the differential effects of "length" of enrollment and degree attainment on exposure to cultural information. The universe for this table consists of all students in the NLS/PETS who "made a go" of postsecondary education, that is, earned more than 10 credits over 12 years, whether they earned a degree (of any kind) or not—and 40 percent did not earn a degree of any kind. The table demonstrates the expected: that a higher percentage of people who earned bachelor's degrees were exposed to different kinds of cultural information than those who spent less time in postsecondary education. The comparison group consists of students who spent the equivalent of at least 1.5 years in college but who didn't earn a B.A. (though they may have earned an associate's degree). The point of the comparison is to remind us that in our arguments over what colleges require students to study we often forget the fact that not everybody who enters college earns a degree, and that length of time enrolled (using credits as a proxy for time) is directly related to the potential range of learning in a generation.

Enrollments: Institutional Factors

The diffusion of cultural information to a generation cannot be mapped without accounting for the nature of the institutions in which formal studies are pursued. The issue has intrinsic value, but has been made particularly visible by virulent and largely ignorant debates in the press over what Stanford freshmen are required to read. When one looks at the archive left by an entire generation, it should be rather obvious than Stanford is not where America goes to college (only 1.6 percent of the NLS/PETS sample attended elite colleges), and that whether Stanford freshmen read Cicero or Franz Fanon is a matter worthy of a raree show. If I hammer at this issue too loudly it is because, from a *national* perspective, *everybody* who goes to college counts in this discussion.

The question may be phrased in one of two ways: (1) what types of institutions are the *principal providers* of different cultural literacies to the general college-going population? (2) in what types of institutions are students more likely to elect studies that will immerse them in these literacies? Both versions of the question require us to refer to the ratios illustrated in table 13. For convenience, here is an excerpt:

Percentage of courses in selected areas taken in different types of institutions
(all rows add to 100%; abnormal percentages in bold)

	Doctoral	Comprehensive	Liberal arts	Community colleges	Other
All courses	29.4	36.0	6.1	22.0	6.5
Afro–American history	21.4	**45.1**	7.0	24.9	1.6
Non-Western government	**58.8**	32.3	5.9	0.6	2.4
Contemporary philosophy	36.1	42.2	**16.9**	3.6	1.2

Referring to undergraduate course-taking only, what this excerpt (and table 13) does is indicate, for each course, the percentage distribution of all enrollments by institutional type. How do we know whether the percentage distribution for a particular course is unusual or "abnormal"? By comparing it with the percentage distribution, by institutional type, for *all* course categories. Where the difference is greater than 25 percent (a figure derived from the standard deviation for all courses taken in comprehensive colleges, which carry a plurality of all course enrollments), that means a particular institutional type is *providing*, and/or students in that institutional type are choosing to study, the cultural content or information of the course category at a significantly higher rate than the norm.

In the excerpt above, for example, comprehensive colleges were the principal providers to this generation of college students of cultural information concerning Afro-American history. The institutional type "captured" 45.1 percent of all enrollments in Afro-American history; and 45.1 percent is 25 percent above the norm (36 percent) of the total course enrollment share for comprehensive colleges.

On the other hand, as table 13 elaborates, doctoral degree-granting institutions were the principal providers of information on non-Western culture and society, as illustrated by course categories in Latin American studies, non-Western government and politics, economic development, and non-Western art. These are academic specialist interests, and are most easily realized in complex institutions that support a great range of academic specialties. Too, academic expertise is more an objective of specialist interests than it is of demographic or cultural interests, and the ideal of academic expertise is more firmly entrenched in doctoral institutions than elsewhere.

While Liberal Arts colleges were not principal providers of information to an entire generation, they were significant providers in such course categories as non-Western literature in English, African history, non-Western art, classical literature, and (as illustrated above) contemporary philosophy. It is precisely because they are less complex and offer a more finite range of courses than other types of institutions that this phenomenon occurs. While we have touched on this notion above in the context of general course-taking patterns, it bears repetition in this more specific context: the finite range generally excludes occupationally-oriented curricula, and focuses more on traditional humanities and social science fields in which the five cultural literacies are to be found. Student course-taking in liberal arts colleges will thus be overrepresented in a national measurement of enrollments in these fields.

It is not surprising to find that community colleges are not principal providers of cultural information to a generation of college students, as most of the courses in our four clusters are upper division offerings. The one exception (and it is a borderline case) is "Hispanic American Studies," a by-product of the heavy concentration of Hispanic students in community colleges. But even in the Introductory Western Culture and Society Cluster, the only course category in which the community college dominates is "U.S. History: Surveys" (34.5 percent of all completed courses). In the case of community colleges, no less than for other types of colleges, these patterns reflect the missions, as well as the curricular capacities of the institutions in question.

The Demography of Enrollments

The third set of observations concerns the characteristics of students who tend to engage in formal study in one or more of these cultural literacy clusters. The stock variables of "who" fall in two classes: demographic background (race, sex, SES) and educational attainment (e.g., high school class rank, highest degree, college grade point average, etc.). Since we are looking principally at people who earned a bachelor's degree, the explanatory potential of the second set of variables is largely moot. And when women earn higher GPAs than men no matter what they study (Adelman 1991), it doesn't make much sense to examine grades in detail. The demographic variables have more potential.

With one exception, there is very little variation in coursetaking across these clusters by gender. As table 7 demonstrates, among bachelors' degree holders, a much higher percentage of women (24 percent) than men (12.8 percent) took at least one course in minority and women's studies, but those percentages are still rather low. This gender-related curricular choice is not found in any of the other clusters.

On the other hand, if we focus on individual course categories rather than clusters, there are considerable variations by population sub-groups. Women comprised 80 percent of the enrollment in women's studies courses; Blacks comprised 60 percent of the enrollment in Afro-American history, 65 percent in Afro-American literature, 80 percent in African languages and 39 percent in African studies; Hispanics accounted for nearly 20 percent of the enrollment in Latin American history. All these cases represent incredibly disproportionate concentrations of these sub-groups in relation to their overall presence in the cohort. In these cases, demography was curricular destiny.

The socioeconomic status of students who take courses in these clusters also departs significantly from the distributions for the entire cohort. A higher percentage of students taking courses in these clusters comes from the top 25 percent of the SES range than is the case for everyone who entered college. This relationship holds across all racial sub-groups. The one exception occurs in the Non-Western Culture and Society cluster, in which low SES students were more likely to take courses in African and Latin American studies.

The relationship between SES and course-taking in these three "determinate" clusters (minority and women's studies, non-Western culture and society, and "advanced" Western culture and society) is understandable. Most of the courses in these clusters are *not* introductory titles, hence have prerequisites and are taken more by those who have persisted to upper division status; and people from higher SES brackets are more likely to persist and complete bachelor's degrees than others.[21]

Enrollments and Major

Undergraduate major is a natural determinant of participation in the various stocks of cultural literacy. Tables 7-10 illustrate this phenomenon. Again, demographic sub-group interests, cultural interests, and specialist interests all play a role in interpretation of the data.

Consider, for example, participation in the Minority and Women's Studies cluster (table 7), which is greatest for majors in Education, Humanities, Social Sciences, and Applied Social Sciences (a category that includes Social Work, Criminal Justice, Home Economics, Recreation, and Communications). Conventional wisdom concerning the majors of women and blacks, that is, large demographic sub-groups, is borne out by the data: with minor exceptions, students meeting those basic demographic characteristics major disproportionally in those four areas:

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Demography of majors among BAs in the NLS–72

	% of Majors who were:		% of Students who majored in:		
	Women	Black	Women	Black	All
All	47.0%	5.6%	100.0%	100.0%	100.0%
Education	72.4	7.4	25.4	21.8	16.0
Humanities	64.1	4.5	8.2	4.9	6.0
Social Sciences	41.1	7.2	15.2	22.5	17.7
Applied Social Sciences	58.1	7.0	11.6	11.7	9.6
All Other	36.6	4.3	39.6	39.1	50.7

As for the Non-Western Culture and Society cluster, we again have the specialist-interest phenomenon. It is very hard to major in Geography, Anthropology, or International Relations, for example, and not encounter at least a portion of the non-Western stock of cultural and social references. It is not surprising, then, that the highest participation in this cluster is that of majors in the Social Sciences (see table 8).

Western Culture and Society as a Primary Store

In the "advanced" Western Culture and Society cluster, it is particularly noteworthy that 88 percent of humanities majors took 13 or more credits (i.e., at least 4 courses) in the fields covered by the cluster. On the one hand, given the fact that the cluster includes all period, author, and topic courses in English and American literature, all history of philosophy courses, and all advanced European language and literature courses, 88 percent is not surprising. On the other hand, there is no other case like it in any of the cultural literacy clusters. The intense concentration of humanities majors here resembles course-taking patterns among science majors. One would get a figure close to 88 percent (and table 6 provides a hint in this regard) if the question read, "What percentage of physical science majors earned 13 or more credits in a cluster of courses beyond the basics in physics, chemistry, and math?"

But to what extent was the entire cohort immersed in the stream of information, references, etc., *explicitly* derived from Western culture? The answer depends on one's definition of "culture," hence the courses in which explicitly cultural information is likely to be encountered, hence the media through which students will either reinforce or expand their stock of schemata in the "supradialect." To repeat the opening paragraphs of this study, if one limits the definition of "culture" to the life of the spirit, its expression in creative and reflective works, and its diffusion through the humanities, then the percentage of total undergraduate time spent studying Western culture was limited. If one expands the definition to admit history and other social sciences, the time this generation spent in the waters of Western culture doubles, to wit:

	Percentage of credits (time) studying Western culture through:	
	Humanities*	**Humanities*, History and Other Social Sciences**
All Students	5.1%	10.1%
B.A.s	7.7	15.7
45+ Credits, but no B.A.	4.1	9.6
<45 Credits, no degree	3.0	8.9

*Exclusive of elementary and intermediate courses in European languages.

Two observations concerning the data in this table and the data that lie behind it are worth making. First, for all four groups of students, more than half of the humanities credits were accounted for by only four course categories: introduction to literature, art history, Bible studies, and American literature; and more than two-thirds of history and social science credits were earned in only three course categories: U.S. history surveys, world/Western Civ, and U.S. government—all of which are in the Introductory Western Culture and Society Cluster. So of the total time each group spent in higher education, the burden of conveying cultural information from the "supradialect" lay on a handful of courses, most of which are introductory.[22]

Second, the less time one spends in postsecondary education, the lower the proportion of that time one spends studying explicitly cultural subjects, and the greater the burden on history and other social sciences (compared to the humanities) for conveying information on Western culture and society.

What kind of information is this? In terms of its primary materials, history is much closer to anthropology than literary studies. History is empirical and messy and relies on the evidence of everyday life: diaries, letters, parish registers, shipping records, newspapers, graphic arts, paths and roads, drawings, machinery, songs, photographs, tape-recorded memoirs and stories, motion pictures, and even college transcripts and data bases such as the NLS–72. Few of these are reflective, creative works representing the life of the spirit and designed to be pondered. Nonetheless, they are a critical part of the language of cultural information. They are artifacts from which historians extract accounts, just as archaeologists consider the products of both ordinary and extraordinary craftsmen as keys to understanding daily life, social relations, religious values, and power in ancient civilizations. Ethnographers, demographers, and geographers draw on many of these same artifacts to tell different kinds of stories, but the relationship between artifact and story line is similar.

The most accessible artifacts are texts of some kind, and the most accessible texts for U.S. faculty and students are written in English. It is inevitable under such circumstances that Western cultural information will dominate the stories. Yet one out of five bachelor's degree recipients—as well as over half of those who earned less than the bachelor's degree—in the NLS–72 had no postsecondary exposure to Western cultural and social information at all, "introductory" or "advanced." The lowest participation rates occurred among majors in Engineering, Agriculture, Allied Health, Nursing, and Engineering Technologies. The participation rates were even lower for occupational associate's degree recipients and candidates in 2-year colleges. All these students are, at best, tourists in their own land.

Beyond these observations, there are no clear-cut patterns, either by demographic subgroup or category of educational attainment. For example, among those who earned bachelor's degrees, and in the course cluster for introductory Western culture and society (see table 9), minority students had more exposure than whites (68 percent of blacks and 65 percent of Hispanics took more than 4 credits, versus 57 percent of whites). In the cluster of courses beyond the basics, however, the differences among the racial groups were statistically insignificant (see table 10).

Immersion in the streams of language that yield Hirsch's primary cultural literacy, the "supradialect," was more frequent than immersion in the streams of secondary cultural literacies. But there is no question that the waters ran neither wide nor deep through the generation that is now "thirtysomething."

As a result, that generation may not consist of efficient participants in its own culture and economy. Given its even more limited exposure to secondary cultural literacies, it certainly seems unsuited to participate in the diversity of world culture and economy. If the diffusion of knowledge best takes place when the water is deep, the arguments among humanities faculty about canons and contents seem so often misdirected, as they focus on—at best—a quarter of the students who pass through our institutions of higher education, the only students who make—or are required to make—any effort at all to expand their language space.

VIII. Cultural Tourists or Residents?

Cultural literacy (singular or plural) is closely allied with the process by which we learn to read, expand our language space, become more efficient producers and users of knowledge, participate in world economic life, and enrich our individual lives in the bargain. People who don't read, don't expand. People who read a little, don't expand much. Text still dominates our communication, whether we see it (in printed material or on computer screens) or don't (in the scripts written for television, radio, and motion pictures). Recall what Wayne Booth said in his critique of Hirsch's work: that children who are immersed in their own culture learn much more than lists. Our first problem concerns immersion: how much study in the different streams of cultural information will produce true expansion of knowledge? What kind of motivation and effort do we expect of college students in this regard? Will they truly benefit if all they garner are fragments? One way to illustrate what's at issue here is all around us: the language landscape of the United States.

Immersion: "Foreign" Languages and American Culture

In the concept of the "supradialectical," raised at the outset of this study, is more than a metaphor. The United States is a linguistically heterogeneous society, and always has been. Recent immigration waves from the Pacific rim, Central America, Haiti, and Eastern Europe have made it even more so. In the early 1980s, the San Diego Community College District was delivering ESL instruction to a population speaking 40 different languages. In the early 1990s, the public schools of Fairfax County, Virginia, for example, report serving students from households in which over 70 different languages are spoken. All of them are learning English, the "supradialect," without which their participation in national economic and political life will be limited. But most will hold on to a portion of their linguistic heritage, and some terms and phrases from their languages may, in time, enter common English usage.

Hirsch's infamous list, in fact, contains terms from Spanish, French, and German that have entered the supradialect this way (e.g., à la carte, blitzkreig, déja vu, mañana, nouveau riche, tête-a-tête); and no doubt other non-English terms will enter in the future. Hirsch's list could be translated into any of those—and other—languages, and large parts of it would elicit similar schema from native speakers of those languages (consider, for example, terms on Hirsch's list such as "gene," "general anesthetic," "general strike," or "generating plant"). To be sure, some schema would not be identical; and for people who have come to the United States from very isolated language communities (e.g., the Hmong), the references themselves would be inaccessible.

In light of the multi-lingual nature of our society, it sounds odd to call languages "foreign." Yet in all the contemporary discussions of "multiculturalism" and "cultural diversity," we hear little, if anything, about native language and language maintenance, let alone do we see native speakers of English reaching out to immerse themselves in another culture through second language acquisition. Yes, as Lambert reports, language enrollments at both the secondary school and college level rose in the mid-1980s, but also that the drop in enrollments from the first year of study to the second were staggeringly high in every language and in every type of institution save Russian and French in liberal arts colleges (Lambert 1990).

Ideally, the learning of a second language involves immersing oneself in a speech community that uses terms and phrases according to role, relationships, circumstance, and situation (Hickey 1980). This is not a superficial undertaking. You can't do it in a course or two; you can't do it in a unit of course that introduces and mixes in material from another culture. People whose efforts are so slight will never be more than tourists. Immersion is real "multicultural" education, yet is strangely shunned by putative "multiculturalists." It involves establishing "cultural literacy" in another community, not by being able to identify and define items on a list, but by knowing how and when to use those items in complex situations. Immigrants to the United States do it all the time, and can tell us how hard it is, how long it takes, and how much reading—in addition to speaking and listening—is involved.

The Playing Fields of Time

The members of the High School Class of '72 who went to college were not subject to the same intensity of normative demands on their academic time as are contemporary college students. "Study me!" cries one commission. "No, study me!" cries another report. Math, computers, literature, history, ethnic studies, non-Western studies, foreign languages, environment—each of these has been advanced as indispensable or critical for surviving in the 21st Century, just as many of them were advanced as essential for survival in the 20th Century. Some are even advanced as elixirs of eternal survival. It's hard to read these reports without questioning how their recommendations could come to pass on the playing fields of college time. Had students acted equally on the nostrums of all the national reports on higher education in the 1980s and stopped at 120 credits, they would have wound up with a lot of little pieces.

What's the solution for the *student*—not for faculty who are trying to maintain or increase enrollments in their departments? What guidance does the college experience of the Class of '72 as reflected in this study offer to academic advisers?

The solution comes in three steps. First, take Ishmael's lesson from *Moby Dick*: you can't know everything, and studying a little bit of everything will not result in any knowledge that is satisfying. The first step is to establish a mindset: immersion is better.[23]

Second, do some triage. Few entering college students know everything they really want to study. But within a year of both formal general education and exposure to as much cultural information as campuses have to offer, you can establish priorities. Set aside interests that cannot be explored fully, and pledge that you will come back to them in continuing education after college. If you finish your degree, whether associate's or bachelor's, the chances are better that you will, in fact, come back to school to pursue these interests. The playing fields of time are long and green.

Lastly, put a limited number of course clusters together through which you can study—let us say—three areas (in addition to your major) in some depth. Look at Cheney's *50 Hours*, not necessarily to follow its prescriptions, but for what it suggests you *can* do. Build a cluster in the cultural "supradialect." Build another in a cultural literacy that requires study in a language other than English and the crossing of what anthropologist Clifford Geertz described as an uneven terrain of "clefts and contours" (Geertz 1986). Build another in. . . . With all the prerequisites, that will add up to 50 hours, but at least you will feel some immersion. You will not be a tourist.

Notes

1. *Light and Shadows on College Athletes* (Washington, D.C.: U.S. Department of Education, 1990), *Women at Thirtysomething: Paradoxes of Attainment* (Washington, D.C.: U.S. Department of Education, 1991), and *The Way We Are: the Community College as American Thermometer* (Washington, D.C.: U.S. Department of Education, 1992). All are available, at very modest charge, through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402-3238. Phone: (202) 783-3238.

2. The third cohort, known as the National Education Longitudinal Study of 1988 (NELS:88), was established when its members were in the eighth grade. Not all of them will graduate from high school, and not all the graduates in this cohort will receive their high school diplomas in 1992.

3. In the data analysis file created for this series of monographs, there are five configurations of college courses in science, technology, and engineering. The configuration used for this table is confined to disciplinary courses in the biological and physical sciences, clinical health science courses (e.g., Neuroanatomy, Clinical Biochemistry), and physiological psychology. All these are courses most likely to include laboratory or field investigations. The configuration does *not* include:

> (a) The course category for General Science, a sample of the titles under which include, "Aims and Achievement of Science," "Universe: Myth and Fact," "Ideas and Issues in Science," "Natural Science Survey," and "Science Fundamentals."
>
> (b) Course categories covering "babified" versions of botany (titles dominated by "Plants and Civilization") and chemistry.
>
> (c) Biostatistics, history of science, biological anthropology, food science and nutrition, environmental studies, animal and plant science courses taught in schools of agriculture, and conservation and natural resources—all of which are covered in other configurations of courses.

4. When one examines either the *required* courses for "upper secondary" or "academic" secondary school diplomas or the courses designed to prepare students for national college entrance examinations in other OECD countries, it is obvious that 100 percent of the students who eventually earn the equivalent of bachelor's degrees have taken more than minimal work in foreign languages and basic science. To be sure, we don't know what these students study at the university level because no other country has a national transcript sample like the NLS/PETS.

5. Whether one disagrees with the way Hirsch treated some of his sources (Scholes 1987; Sledd and Sledd 1988), whether one thinks a list of terms is useful only in playing trivial pursuit, or whether, as I believe, Hirsch underplayed the process of linguistic change in his analysis, is beside the framework of this study.

6. The coding scheme for the revised NLS/PETS transcripts allows us to determine (a) the percentage of students who take such courses, and (b) the percentage of total credits generated by these courses. While varsity athletes are often allowed to accumulate ridiculous numbers of what I call "sportscredits," most students take these courses for fractional or no credit. The difference between the enrollment and credit figures is important in judging the relative role of these courses in the undergraduate curriculum. Here, for example, are the data for those in the NLS/PETS sample who earned bachelor's degrees at any time between 1972 and 1984 (weighted N=732,511):

	Percent Enrolled	**Percent of all Credits**
Karate, Judo, Self-Defense	3.7%	0.030%
Equestrian	0.9	0.009
Yoga	1.0	0.006
Scuba/Skin Diving	1.6	0.013
Fishing, Fly-Casting	0.4	0.003
Riflery, Pistol (non-military)	0.5	0.004

Compare these figures to those in the table of "The Empirical Core Curriculum of bachelor's Degree Recipients" at the beginning of Section VII of this monograph.

7. Both Cheney (1989) and Levine and Cureton (1992) first use samples of institutions, then look at the curricular "requirements" of the institutions—as reported by a respondent to a survey—and come up with a population estimate of institutions requiring X or Y. Neither of these approaches ever tells us what percentage of U.S. undergraduates are presumably affected by these requirements, and there is a good reason: you cannot obtain a population estimate of students from a weighted sample of institutions. It's apples and pears. If 90 percent of undergraduate students in the U.S. attended the 19-campus California State University System, and 10 percent attended the other 3,381 institutions in this country, there is no way that an *institutional* sample will tell you what percentage of U.S. undergraduates are affected by anything. This is common sense.

8. Among course categories in which 250 or more students out of the 12,599 in the NLS/PETS enrolled, the following showed relatively high degrees of non-completion:

College Algebra	17.9%
Botany: General, Introduction to	16.7
General Psychology	16.5
General Biology	15.8
Marketing	15.7
Freshman Composition (English)	15.7
Zoology: General, Introduction to	15.6
Introductory Sociology	15.4
Intro College-Level Math	15.4
Communications: Introduction, Fundamentals	15.2
Advanced Grammar and Composition	15.2
Pre-Calculus/Analytic Geometry	15.0
General/Integrated Science (Interdisc)	15.0
World/Western Civilization (History)	15.0
General Humanities (Interdisc)	14.9
French: Introductory, Intermediate	14.8
U.S. History Surveys	14.8
Basic Academic Skills	14.7
German: Advanced, Literature	14.6
Pre-Collegiate Math: General	14.6
General Chemistry	14.4
General Social Science	14.3
English Literature (all periods)	14.1
Inorganic Chemistry	13.9
Finite Math/Discrete Math	13.7
Engineering: Introduction, Concepts, Design	13.6
U.S. State/Local Politics	13.5
Community Health (Org. and Services)	13.3
Music History/Appreciation: General	13.3
Office Management	13.2

With few exceptions, this list is dominated by introductory courses and remedial courses most likely to be taken by students who are least likely to finish a degree of any kind. The high non-completion rates are fairly easy to explain.

9. The survey, *Undergraduate General Education and Humanities Requirements* (Lewis and Farris 1989), covered 504 institutions, some of which were 2-year colleges, but we don't know how many. This is an important issue if you are talking about "graduation requirements": the more 2-year schools in the sample, the higher the percentage of colleges from which it is possible to graduate without having taken courses in specific fields.

While we have no idea who the respondents at these institutions were, we do know that they were asked about curriculum requirements for *both* the academic year 1988-89 *and* for the academic year 1983-84. The purpose was to determine the degree of change over the 5-year period, and the units of analysis were *both* the number of institutions with various requirements *and* the mean number of credits required.

The table in the text of this monograph employs the 1983-84 curriculum requirement figures (which are not used in *50 Hours*) because the year is as close as we can get to the period during which the generation of the NLS–72 went to college.

10. The coding scheme for college transcripts in the NLS/PETS sample involves 1,037 course categories. Under history, alone, there are 24 categories, one of which covers such titles as "World History," "Western Civilization," "Modern World," etc. But many of the other categories are certainly key components of the "history of Western civilization." There is one category, for example, that covers titles such as "Ancient History," "Classical History," "The Roman Empire," etc., and another that covers titles under the general rubric of European History: Dark and Middle Ages. One could also include various Art history courses under the "history of Western civilization." Indeed, a student could take 4 or 5 courses that would add up to a *de facto* mini-curriculum in the "history of Western civilization." Cheney's scheme, it seems, would not count such a student as having taken a course in the "history of Western civilization" as distinct from "history." Because it was difficult to figure out the distinction, I could not include "Western civilization" as a separate category in the analysis.

Cheney's category of "natural and physical sciences" presents a different kind of dilemma, since it appears to be an aggregate, and I was unsure of what it was aggregating. Does it include animal science and plant science courses offered in schools of agriculture (the coding scheme used in this monograph has 18 such course categories) in the aggregation? Is a course category such as pharmaceutical chemistry in or out? A biology service course for nursing programs such as pathophysiology? To be persuasive, taxonomic categories have to be well-defined, and there were too many potential ambiguities in this one to attempt an aggregation.

11. The article from which the Carnegie survey data was drawn, a "Trendlines" report in *Change* magazine (January/February, 1992) entitled, "Signs of a Changing Curriculum," illustrates the sloppiness of attempts to describe college curriculum through surveys. First, the 1985 Carnegie survey of general education requirements also included a category called, "International/Global Education." The category was not explained, nor was it differentiated from "Third World Studies," nor was it clear whether fulfilling a requirement in the latter simultaneously fulfilled a requirement in the former.

Second, the article implied that the U.S. Department of Education's *Classification of Instructional Programs* (CIP) described courses (it does not; it describes only programs in which credentials are awarded), and that categories were added to the CIP taxonomy between 1979 and 1985 editions because of "new or rising interest in higher education." The CIP is not a speculative document: the criteria for dropping and adding categories, are far more empirical, and involve threshold numbers of credentials actually awarded, threshold numbers of institutions awarding those credentials, and threshold numbers of states in which those institutions are located (Morgan, Hunt and Carpenter 1990).

Lastly, the Carnegie article uses "a database compiled by CMG Information Services" (which turns out to be a marketing firm servicing the publishing industry), to conclude, on the basis of orders for books from college faculty on international, non-Western, comparative, ethnic, and intercultural topics, that faculty were "required" to teach courses on these topics. When a respected national organization such as Carnegie tosses these non-sequiturs of "data analysis" onto the fires of contemporary arguments over multiculturalism in higher education, the results are heat and hysteria, not light.

12. The current program accreditation standards of the National Association of Schools of Music for the Baccalaureate Degree in Music Education read as follows:

> Music education degree programs typically comprise 120-132 semester hours . . . of which studies in music . . . should comprise at least 50%; general studies 30% to 35%; and professional education, 15% to 20%. Professional education is defined as those courses normally offered by the education unit which deal with philosophical and social foundations of education, educational psychology, special education, history of education, etc. . . . student teaching is counted as professional education. (NASM 1991: 62-63)

If the baccalaureate curriculum totals 120 credits, the music and professional education requirements consume 78. Given state teacher certification requirements that claim between 6 and 15 credits of student teaching, the chances that a Music Education major will take more than 120 credits are rather high, and that the additional credits will be in the major are also rather high.

Among the various types of music degrees, only the B.A./B.S. degree with a major in music consumes less than 65 percent of undergraduate time.

13. The document on which this analysis is based covers curriculum standards of the American Association of Collegiate Schools of Business as revised through April, 1988 (AACSB 1989). The 1988 standards required accounting majors to devote "at least" 25 percent of their work to a "common body of knowledge in business administration," a minimum of 15 percent to accounting, and, within the general education portion of a student's program, the study of "probability theory and statistics" (presumably, a minimum of one course). In practice, there would have been some overlap between the business administration and accounting requirements, but this would have been balanced by pre-requisite courses outside either field, for example, in computer science. The 45 percent estimate is a minimum.

It should be noted that the AACSB adopted new accreditation standards in April of 1991. The new curriculum standards are difficult to compare to the old, but it appears that they lower the minimum prescribed business/accounting requirements to roughly 30 percent of undergraduate work while tallying up to 15 credits of math and economics courses under institutional general education requirements.

14. The distribution of majors, by race, for those in the NLS/PETS sample who earned bachelor's degrees, is as follows:

Distribution of bachelor's degree majors by race

	White	Black	Hispanic
Total Science/Engineering/Tech	**27.4%**	**19.0%**	**26.1%**
Engineering, Architecture	6.5	2.0	7.0
Physical Sciences	3.1	1.8	5.4
Biological Sciences	8.5	6.0	6.5
Math/Computer Science	1.8	2.0	0.4
Health Sciences	7.5	7.2	6.8
Total Ed/Social Sci	**41.7%**	**55.2%**	**51.3%**
Education	15.7	21.7	15.6
Social Sciences	17.2	23.3	24.2
Appled Social Sciences	8.8	10.2	11.5
Total Humanities/Arts	**11.0%**	**8.5%**	**10.7%**
Humanities	6.1	5.5	6.4
Fine/Performing Arts	4.9	3.0	4.3
Total Business and Other	**20.0%**	**17.3%**	**12.0%**
Business	17.7	16.2	11.1
Other	2.3	1.1	0.9
Total:	**100.1%**	**100.0%**	**100.1%**

Source: U.S. Department of Education, National Center for Education Statistics: NLS–72 Special Analysis Files.

15. This category was defined to include courses in which one studies *about* arts or artists or in which one performs drama written by others. In these cases, there is no doubt that cultural information is transmitted. In other cases, such as stagecraft, studio art, music theory, or some types of music performance classes, the case for the explicit transmission of cultural information is not as clear.

16. Over the course of 12 years (1972-1984) the 12,599 students in the NLS/PETS sample attended 2,981 institutions. For purposes of this analysis, these institutions were classified by degree of selectivity using the cell weighting descriptions from the Cooperative Institutional Research Project's (CIRP) annual reports, *The American Freshman*, for the years 1976, 1977, 1978, and 1979. The variable had four values: highly selective, selective, not selective, and not ratable (proprietary schools, vocational-techs, hospital schools of nursing, conservatories, etc.) Only 46 institutions of the 2,981 were rated as "highly selective," that is, the Harvards, Dartmouths, and Stanfords. Only 1.6 percent of the students, and 2.9 percent of the bachelor's degree recipients in the NLS/PETS attended these schools. Another 5.5 percent of the students, and 11.2 percent of the bachelor's degree recipients attended "selective" schools.

One way to measure how students spend their undergraduate time is by distribution of majors among bachelor's degree recipients:

Distribution of bachelor's degree majors by selectivity of institution

	Highly Selective	Selective	Not Selective
Business	0.9%	12.4%	19.2%
Education	2.0	6.1	18.5
Applied Social Sciences	1.5	8.1	9.5
Health Science/Services	3.6	6.2	7.3
Engineering/Architecture	8.4	10.2	5.6
Physical Sciences	10.2	3.3	2.7
Math and Computer Sciences	7.1	1.8	1.7
Life Sciences	10.5	12.8	7.2
Humanities	12.6	9.7	5.4
Arts	7.9	5.2	4.5
Social Sciences	32.8	22.4	16.5
Other	2.5	2.0	2.1
Total:	**100.0%**	**100.0%**	**100.0%**

Source: U.S. Department of Education, National Center for Education Statistics: NLS-72 Special Analysis Files.

Appendix B details two other ways of demonstrating that what the small fraction of students at highly selective colleges study is not what everybody else studies.

17. The taxonomy in *A College Course Map* was based on 485,000 course title entries on the transcripts of 12,599 NLS/PETS students. If nobody in this transcript sample took a course, you won't find that course in the taxonomy. After drafting a tentative taxonomy and classifying courses, the results were presented to faculty teams from 17 major disciplinary areas and experts in a dozen others for refinement of both categories and decision rules, and the entire database recoded again according to their advice. The process is described more fully in the *A College Course Map*, pp. 1-11.

18. Lambert's more limited and focused study of the "international studies" content in the transcripts of 8,400 students who graduated from four community colleges and thirty 4-year colleges in 1986 (Lambert 1989) includes not only all foreign languages, but also all study abroad, whether in Western or non-Western nations, English or non-English language programs. In our very different sample, 2,981 institutions were represented, and it appeared that no two of them flagged study abroad courses or semesters the same way. Hence, our coding system does not distinguish between courses taken in the U.S. and courses taken elsewhere. A course in art history taken at the University of Bologna will be coded as art history if the credits were accepted and entered on the transcript of the student's home institution. That the course was taught in Italian will not be known. In a national sample covering students who did *not* graduate from either 2-year or 4-year colleges (as well as those who did), the incidence of "study abroad" would not be very notable.

19. When it comes to "distinctly labelled" courses that treat the imaginative expressions of culture, there is a raucous critical tradition that says, "if you have to label it that way, it can't be any good." There *is* "high art" and "low art," but the difference between "high" and "low" does not refer to cultural labels. The criteria, in part, include the very empirical judgment of whether the *teaching* of the art—the methods of passing the art from generation to generation within a culture—has been systematized and institutionalized, and whether practitioners can tell us what they do. If these conditions are met within any cultural tradition, the art has been elevated.

Music contains some of the best examples. There are "folk" music traditions everywhere, some of which are adopted by religious or public ceremonies. But until these traditions are taught systematically, self-consciously, and formally, they have not been canonized by their own cultures. Fifty years ago, for example, the blues was treated as folk music. Today, it is taught. Every serious musician practices scales, and among the scales are 12 blues scales. In addition to the scales, there are standard blues riffs, each with its own degree of subtlety; and these, too, must be practiced. The form of the 12-bar blues is inviolable; but it can be extended and sustained—as masters from Gershwin to Ellington to Davis have shown—to complex, concert-length pieces, and combined with other structures such as that of the concerto.

In part, because the teaching of the blues has been systematized, because there are rules, music students know the difference between good blues and lousy blues, and can illustrate with both composition and performance. Yes, tactile and aural sense play a significant role in that illustration, but the illustration is also discursive. An expert can now pass on the tradition of the blues to a student by means that go beyond mere imitation. The form has been canonized.

20. There are some minor differences between the percentages in this table and those reported in *A College Course Map*, pp. 141 ff. The *Map* was produced at a stage in the second cleaning of the NLS–72 postsecondary transcript files at which the "course" file had been recoded, but the "transcript" and "term" files were not yet completely cleaned.

21. For all students in the NLS–72 who earned more than 10 credits from a postsecondary institution of any kind between 1972–1984, here are the relationships between socioeconomic status in 1972 and highest degree earned by 1984:

	SES in 1972		
Highest Degree Earned	**Low**	**Medium**	**High**
None	57.7%	47.9%	33.4%
Certificate/License	7.9	5.8	2.3
Associate's Degree	9.5	10.4	6.3
Bachelor's Degree	20.8	30.0	46.3
Master's Degree	3.2	4.6	8.1
Ph.D./1st Professional	0.9	1.3	3.7

Source: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis Files.

22. Of the seven course categories, only art history and American literature include advanced courses, for example, "Renaissance Art" or "The American Renaissance."

23. Of course, Ishmael studied whales and whaling from every angle (physiological, archaeological, legal, artistic, etc.) and with every one of his senses, and still felt he never knew the essence of the creature.

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Appendix A
Definitions Used in Tables

I. Undergraduate Major

There are three (3) configurations of undergraduate major that have been used in the "Archives of a Generation" studies. The configuration selected for this study is (with percentage of all bachelor's degree recipients in parentheses):

Business: (17.5%)	Business Administration, Accounting, Management, Marketing, Finance, Specialized Marketing, Office Support, Operations Research
Education: (16.0%)	Education (any kind), Library Science
Engineering: (6.2%)	Engineering, Architecture, Engineering Technologies
Physical Sciences: (3.0%)	Physics, Chemistry, Geology, Earth Science, Astronomy, Meteorology, Science Technologies
Math/Computer Science: (1.8%)	Mathematics, Computer Science, Applied Math, Statistics
Life Sciences: (8.4%)	Biological Sciences, Agricultural Sciences (Animal Science, Plant Science), Conservation & Natural Resources
Health: (7.5%)	Allied Health Sciences, Nursing, Speech Pathology and Audiology, Clinical Health Sciences, Pharmacy, Public Health
Humanities: (6.0%)	Foreign Languages & Literatures, Linguistics, English and American Literature, Creative Writing, Philosophy, Religious Studies, General Liberal Arts
Arts: (4.8%)	Art History, Fine Arts, Graphics/Design, Theatre Arts, Film, Music, Communications Technologies
Social Sciences: (17.7%)	Anthropology, Economics, Psychology, Political Science, Sociology, History, Geography, Area Studies, International Relations, Ethnic Studies
Applied Social Sciences: (8.9%)	Communications, Public Relations, Public Admin., Protective Services & Criminal Justice, Home Economics (Textiles, Nutrition, Housing, etc.), Social Work, Recreation, Military Science
Other (2.2%)	Interdisciplinary, Theology, Trades, Precision Production, Vocational Home Economics

II. Institutions Awarding Bachelor's Degrees

(With percentage of bachelor's degrees awarded to NLS–72 students—by 1984—in parentheses):

Doctoral (40.8%)	Any institution classified under the Carnegie system as either a research university or a doctoral degree-granting school.
Comprehensive (46.3%)	Institutions offering a broad array of academic and occupational programs. With few exceptions, the Master's degree is the highest degree offered.
Liberal Arts (9.2%)	Institutions offering traditional undergraduate arts and sciences programs. With few exceptions, the bachelor's degree is the highest degree offered.
Other (3.7%)	Specialized schools in fields ranging from design to theology to technology to music.

Appendix B
Institutional Selectivity and Undergraduate Course-Taking

Part I: Selectivity of institutions (N=2,981) attended by students in the NLS/PETS. 1972–1984.

	Percent of all students	Percent of bachelor degrees
Highly Selective	1.6%	2.9%
Selective	5.7	11.2
Not Selective	84.1	81.6
Not Ratable	8.7	4.3

Part II: Percentage of all undergraduate credits earned by bachelor's degree recipients that were earned in discrete courses (1,037 categories), plus percentage of bachelor's degree students who enrolled in those courses, by institutional selectivity.

	Highly selective			Selective			Not selective		
	Percent credits	Rank	Percent students	Percent credits	Rank	Percent students	Percent credits	Rank	Percent students
A. Top 20 courses in **highly** selective colleges									
Calculus	4.0%	1	50%	3.2%	1	48%	1.7%	5	27%
Introductory Physics	3.0	2	43	2.2	4	37	1.3	11	24
General Chemistry	2.6	3	39	2.4	2	40	1.7	4	34
English Composition: Regular	1.9	4	47	2.4	3	63	3.1	1	76
Organic Chemistry	1.7	5	20	1.3	8	21	0.7	24	13
Art History	1.6	6	21	0.8	21	24	0.7	22	22
Introduction to Economics	1.5	7	36	1.8	5	48	1.7	7	45
German: Introductory/Intermediate	1.4	8	25	0.7	25	12	0.5	42	8
General Biology	1.3	9	26	1.6	7	39	2.0	2	49
General Psychology	1.3	10	47	1.7	6	62	1.9	3	72
Math: Post-Calculus	1.3	11	18	0.3	63	6	0.1	112	5
French: Introductory/Intermediate	1.3	12	28	1.1	12	20	0.8	20	13
Music Performance	1.3	13	10	0.9	16	14	1.3	10	16
English Literature	1.1	14	18	0.8	18	16	0.7	23	16
Electrical Engineering	1.0	15	12	0.7	26	9	0.4	53	4
Spanish: Introductory/Intermediate	1.0	16	15	1.1	10	19	1.1	16	18
French: Advanced & Literature	1.0	17	13	0.4	48	6	0.2	158	2
Geology: General	1.0	18	13	0.6	28	15	0.6	29	17
Literature: General, Introduction	0.9	19	28	0.9	14	28	1.1	17	32
Humanities: Interdisciplinary	0.9	20	13	0.4	51	8	0.4	52	11
B. Remaining courses from the top 20 in **selective** colleges:									
U.S. History Surveys	0.5%	41	17%	1.3%	9	33%	1.7	6	44%
Introductory Sociology	0.8	21	29	1.1	11	39	1.4	9	53
Accounting: Advanced	0.3	96	5	0.9	13	13	1.2	13	16
U.S. Government: Introduction	0.6	28	21	0.9	15	31	1.2	14	37
Phys. Ed. Activities	0.3	97	46	0.9	17	59	1.5	8	69
Western or World Civilization	0.6	29	15	0.8	19	20	1.2	12	31
Statistics (Math)	0.7	22	24	0.8	20	29	0.7	28	23

	Highly selective			Selective			Not selective		
	Percent credits	Rank	Percent students	Percent credits	Rank	Percent students	Percent credits	Rank	Percent students
C. Remaining courses from the top 20 in **non-selective** colleges:									
Accounting: Introduction	0.4%	64	8%	0.7%	24	18%	1.1	15	25%
Communications: General	0.2	159	7	0.6	31	21	1.0	18	39
Developmental Psychology	0.6	37	19	0.6	27	20	0.8	19	27

Part III. Percentage of undergraduate credits earned by bachelor's degree recipients in course clusters (105 categories), by degree of institutional selectivity.

	Not selective		Selective		Highly selective	
	Percent	Rank	Percent	Rank	Percent	Rank
Business Adminministration/Management	5.0%	1	3.5%	7	1.2%	26
Literature in English	4.6	2	5.7	1	7.5	1
Writing Skills (all)	4.0	3	2.7	9	2.1	14
Education: Other[1]	3.7	4	1.7	21	1.3	22
Biological Sciences Sub-fields[2]	3.5	5	5.0	2	4.0	7
Chemistry	3.1	6	4.8	3	6.2	2
Education: Subjects[3]	3.1	7	1.0	36	0.5	50
For Languages: Elemementary/Intermediate	2.7	8	4.0	4	5.3	4
Accounting	2.5	9	1.9	14	0.7	40
Psychology (except General, Developmental)	2.4	10	2.7	10	2.7	11
Phys. Ed./Health Activities	2.4	11	1.3	25	0.3	56
Biological Sciences: General	2.1	12	1.7	18	1.4	20
History: Other[4]	2.1	13	3.6	6	3.7	8
Calculus/Advanced Math	2.1	14	3.7	5	5.4	3
Psychology: General	1.9	15	1.7	17	1.3	21
Philosophy	1.8	16	1.9	13	3.1	9
Sociology (except Introductory)	1.7	17	1.7	22	1.1	27
U.S. History Surveys	1.7	18	1.3	26	0.5	47
Economics: Introduction	1.7	19	1.8	15	1.5	19
Communications: Other[5]	1.6	20	1.7	16	0.5	49
Music (except performance)	1.6	21	1.3	23	2.0	15
College Math[6]	1.6	22	1.1	30	0.7	42
Engineering	1.6	23	2.9	8	4.4	6
Physics	1.6	24	2.6	11	5.0	5
Polical Science (except U.S. Govt.)	1.4	25	2.2	12	2.5	12
Sociology: Introduction	1.4	26	1.1	31	0.8	37
Interdisciplinary	1.3	27	1.6	23	3.1	13
Music Performance	1.3	28	0.9	39	1.3	23
World or Western Civilization	1.2	29	0.8	41	0.6	44
Visual Arts: Studio	1.2	30	0.8	42	1.0	30
Geography	1.2	31	1.0	35	0.5	48
Economics (except Introductory)	1.2	32	1.7	20	2.9	11
Home Economics	1.2	33	0.8	40	0.4	55
U.S. Gov't. & Politics	1.2	34	0.9	38	0.6	43
Nursing	1.1	35	1.7	19	0.3	58

	Not selective		Selective		Highly selective	
	Percent	Rank	Percent	Rank	Percent	Rank
Geology/Earth Science	1.1	36	1.2	28	2.0	17
Physical Science	1.1	37	0.8	44	1.0	31
Pre-Collegiate Math	1.0	38	0.5	54	0.3	57
Anthropology	1.0	39	1.3	27	1.3	24
Theatre and Film	1.0	40	1.1	29	1.3	25

[1] Except Special Education and Teacher Education Subjects (e.g., Arts Education, Social Studies Education, Reading and Language Arts, etc.)

[2] E.g., biophysics, microbiology, ecology, genetics, zoology, animal behavior/ethology, developmental biology.

[3] E.g., Arts Education, Mathematics Education, Physical Education (for teacher certification), Home Economics Education.

[4] Excludes U.S. history surveys, and Western or World Civilization surveys.

[5] Includes TV/Radio broadcasting, journalism, mass communications, etc.

[6] Includes college algebra, pre-calculus, finite and discrete math, and "liberal arts math."

Table 1.—Percent of students completing undergraduate courses in six cultural literacy clusters

	All students with >10 credits weighted percent	BA/BS degree weighted percent	No BA/BS but 45+ credits weighted percent
Cluster #1: Advanced Western Culture and Society			
Eastern European Studies	0.1	0.1	0.0
European Studies: General	0.8	1.3	0.3
Russian Studies	0.5	0.9	0.2
Scandinavian Studies	0.2	0.2	0.0
Western European Studies	0.1	0.3	0.0
Canadian Studies	0.2	0.3	<0.1
Russian: Advanced, Literature	0.2	0.4	0.1
German: Advanced, Literature	1.0	1.8	0.4
Scandinavian Language: Advanced/Literature	<0.1	0.1	0.0
French: Advanced, Literature	1.5	3.0	0.3
Italian: Advanced, Literature	0.1	0.2	0.0
Portuguese: Advanced, Literature	<0.1	0.1	0.0
Spanish: Advanced, Literature	1.6	2.7	0.9
Classical Literature	3.5	6.2	1.3
Bible as Literature	0.9	1.5	0.6
Bible Studies (Theology)	7.9	11.6	5.8
Comparative Literature: Western	3.0	5.7	1.0
American Literature	14.0	23.1	9.1
English Literature	10.0	16.5	5.9
Shakespeare	3.9	7.1	1.5
Literary History/Criticism	1.1	1.9	0.4
History of Philosophy: General	0.9	1.6	0.5
History of Philosophy: Ancient	1.1	1.8	0.7
History of Philosophy: Modern	0.8	1.5	0.4
Contemporary Philosophy	1.2	2.1	0.4
Religion: Christianity	2.1	3.4	1.4
Religion: Judaism	0.5	0.9	0.2
History of Psychology	1.0	1.7	0.4
History of Economic Thought	0.5	0.9	0.2
Geography of No. America/Anglo-American	2.2	3.8	1.1
Geography of Europe, USSR	0.3	0.6	0.1
Intellectual/Cultural History: European	1.5	2.5	0.9
Economic/Business History	1.5	2.7	0.7
History of Science/Technology	1.3	2.4	0.4
U.S. History Topics: to 1860	2.4	4.4	0.9
U.S. History Topics: from 1860	1.4	2.6	0.4
U.S. Intellectual/Cultural History	1.6	2.8	0.8
U.S. State/Local/Regional History	3.8	6.1	2.6
U.S. History: Other Topics	3.1	5.5	1.6
European History: to Renaissance	1.5	2.7	0.8
European History: Renaissance–1789	2.8	5.1	1.0

Table 1.—Percent of students completing undergraduate courses in six cultural literacy clusters—Continued

	All students with >10 credits weighted percent	BA/BS degree weighted percent	No BA/BS but 45+ credits weighted percent
European History since 1789	3.7	6.3	1.9
European History: Individual Countries	2.8	5.0	1.2
European History: Other	2.3	3.9	1.1
U.S. Constitutional Law/History	3.4	5.6	1.9
European Government & Politics	1.1	2.1	0.4
Political Behavior, Parties	1.9	3.5	0.6
U.S. Foreign Policy/Diplomacy	1.6	3.1	0.8
U.S. State/Local Government/Politics	4.5	6.7	3.9
History of Drama/Theatre	5.1	7.6	3.8
Art History: General	15.6	22.2	13.9
History of Architecture	0.9	1.5	0.6
Music History: Classical	1.3	2.3	0.6
Music History: Opera/Musical Theater	0.2	0.4	0.1
Classical Greek	0.6	1.0	0.3
Classical Latin	0.8	1.3	0.5
Cluster #2: Introductory Western Culture and Society			
Literature: Introduction	20.7	31.1	16.7
Poetry: General, Introduction	2.4	3.8	1.7
Fiction: General, Introduction	7.3	12.0	4.8
Drama (Literature): General, Introduction	2.5	4.1	1.7
Western/World Civilization	22.1	29.3	20.2
U.S. History: Surveys	32.1	42.1	32.4
U.S. Government & Politics	26.2	35.9	25.5
American Civilization	4.7	6.6	4.4
Cluster #3: Non-Western Culture & Society			
African Studies	0.7	1.1	0.4
Asian Studies: General	0.6	1.0	0.2
East Asian Studies	0.7	1.2	0.3
Latin American Studies	1.1	1.7	0.5
Middle East Studies	0.5	0.8	<0.1
Pacific Area Studies	0.2	0.3	0.0
South Asian Studies	0.1	0.3	0.1
Southeast Asian Studies	0.1	0.3	<0.1
African Languages	0.1	0.1	0.1
Chinese: Elementary/Intermediate	0.3	0.5	0.2
Chinese: Advanced	<0.1	0.1	<0.1
Japanese: Elementary/Intermediate	0.2	0.3	0.2
Japanese: Advanced	0.1	0.1	0.1
Other East Asian Languages	<0.1	<0.1	0.0
Arabic: Elementary/Intermediate	0.1	0.2	0.0
Arabic: Advanced	<0.1	<0.1	0.0

Table 1.—Percent of students completing undergraduate courses in six cultural literacy clusters—Continued

	All students with >10 credits weighted percent	BA/BS degree weighted percent	No BA/BS but 45+ credits weighted percent
Modern Hebrew: Advanced/Literature	0.1	0.2	0.0
Indic Languages	<0.1	0.1	<0.1
Comparative Literature: Non-Western	0.6	1.1	0.4
Non-Western Philosophy	0.5	0.8	0.3
Non-Western Religions	1.1	2.0	0.4
Non-Western Peoples (Anthropology)	0.3	0.5	0.1
Native American (No. & So. American) Peoples	0.7	1.1	0.5
Economic Development	0.5	0.9	0.3
Geography of Africa/Near East	0.2	0.4	0.1
Geography of Asia/Pacific	0.2	0.3	0.2
Geography of Latin America/Carribean	0.3	0.5	<0.1
Asian History	1.7	2.9	1.0
African History	0.6	1.0	0.3
Latin American History	1.2	1.9	0.8
History: Other World Regions	0.9	1.6	0.5
Non-Western Government & Politics	1.0	1.8	0.3
Third World Sociology	0.4	0.6	0.2
Non-Western Art	0.7	1.1	0.4
Non-Western Music	0.2	0.3	<0.1
Cluster #4: Minority and Women's Studies			
Afro-American/Black Studies	2.3	3.1	1.8
Native American Studies	1.7	2.9	1.2
Hispanic American Studies	1.0	1.3	1.1
Asian-American Studies	0.1	0.1	0.1
Other Ethnic Studies	0.8	1.6	0.3
Bilingual/Bicultural Education	0.3	0.5	0.2
Native American Languages	0.1	0.1	<0.1
Afro-American Literature	0.9	1.3	0.8
Afro-American History	1.4	2.0	1.3
Sociology of Race/Minorities	3.1	5.0	2.1
Afro-American Music	0.2	0.4	0.1
Women's Studies	3.5	6.0	1.9
Cluster #5: General Culture and Society: Humanities *			
Non-Fiction Prose, Biography	0.7	1.0	0.5
Science Fiction/Fantasy	1.1	1.8	0.8
Folklore, Mythology	1.1	2.0	0.4
Literature and Film	0.6	1.0	0.2
Literature: Other Topics	3.7	6.0	2.6
Interdisciplines: Humanities	7.8	10.7	7.1
Interdisciplines: Humanities & Social Science	1.1	1.7	0.8
Interdisciplines: Humanities & Arts	1.1	1.5	0.9

Table 1.—Percent of students completing undergraduate courses in six cultural literacy clusters—Continued

	All students with >10 credits weighted percent	BA/BS degree weighted percent	No BA/BS but 45+ credits weighted percent
Introduction to Philosophy	15.3	22.8	12.3
Ethics, Moral Philosophy	6.6	10.5	4.7
Aesthetics, Philosophy of Art	0.8	1.4	0.4
Metaphysics, Epistemology	1.1	1.9	0.5
Philosophy of Language	0.5	0.9	0.2
Philosophy of Education	0.9	1.7	0.5
Philosophy of Science	0.8	1.5	0.2
Philosophy of Religion	1.1	1.7	0.8
Religion: General, Comparative	7.5	12.3	5.0
Religious Ethics, Morality	0.5	0.9	0.2
Religion & Philosophy: Other Topics	1.1	2.0	0.3
History of Religion	1.4	2.3	0.9
Historiography	1.0	1.9	0.4
Political Theory, Ideology	2.9	5.3	1.3
Social Theory	2.0	3.6	0.8
Visual & Performing Arts: Survey	2.3	3.3	2.2
Film Art, Studies	3.0	5.0	1.8
Film History, Theory, Criticism	1.9	3.3	0.9
History of Dance	0.2	0.3	<0.1
Music History & Appreciation	10.9	16.0	8.9
Music History: Jazz	1.2	1.8	0.7
Music History: Pop, Folk	0.6	0.7	0.6
Cluster #6: General Culture and Society: Social Sciences*			
Mass Communications	4.1	6.6	2.7
Public Opinion, Propaganda	0.6	1.3	0.2
Communication Ethics/Regulations	0.8	1.6	0.2
Introduction to Education and Educational Problems	4.9	7.9	3.2
Foundations of Education: Sociology, History	6.4	11.7	2.4
Shelter/Housing (Home Economics)	0.3	0.6	0.1
Clothing, Dress (Home Economics)	1.3	1.7	1.4
Linguistics	4.9	8.8	2.1
Popular Culture	0.6	0.9	0.5
Science, Technology, & Society	2.5	4.3	1.2
Sports and Leisure Studies	1.1	2.0	0.4
Social Psychology	10.8	17.3	8.0
Anthropology: General, Introduction	10.8	16.6	8.4
Cultural Anthropology, Ethnology	7.5	11.4	5.9
Physical Anthropology	2.6	3.7	2.5
Language, Linguistics, and Culture (Anthropology)	0.4	0.5	0.2
Anthropology: Readings, Research	0.2	0.3	<0.1
Anthropology: Other Topics	0.9	1.6	0.5

Table 1.—Percent of students completing undergraduate courses in six cultural literacy clusters—Continued

	All students with >10 credits weighted percent	BA/BS degree weighted percent	No BA/BS but 45+ credits weighted percent
Archaeology	1.3	2.4	0.4
Geography: General, Introduction	12.4	19.4	8.6
Cultural Geography	1.7	2.6	1.2
Economic Geography	1.1	1.8	0.9
Urban Geography	0.6	1.1	0.2
International Relations	3.5	6.2	1.7
Political Science: Introduction, Principles	8.2	12.1	6.4
Comparative Government & Politics	1.9	3.3	1.1
Marriage & Family (Sociology)	8.8	12.6	8.2
Sociology of Youth, Aging, Death	1.9	3.2	1.3
Social Change, Movements	1.8	3.4	0.5
Social Deviance, Disorganization	10.5	15.3	9.1
Community/Rural/Urban Sociology	2.3	3.9	1.3
Social Stratification, Inequality	1.3	2.2	0.7
Urban Studies	2.5	4.5	0.9

* In each of these clusters, the course categories are either "indeterminate," that is, cannot be placed in any of the other clusters, or cover generalized cultural and social material.

NOTE: The Universes (columns): (a) All students who earned more than 10 credits over a 12-year period; N=10,739; Weighted N=1,540,849; (b) All students who earned a bachelor's degree at any time over the 12-year period; N=5,127; Weighted N=732,511; (c) All students who earned 45 or more credits over the 12-year period, but no bachelor's degree (though they may have earned an associate's degree); N=2,948; Weighted N=424,728.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis Files.

Table 2.—Percent of bachelor's degree holders earning college credits in history courses

	Number of credits				
	0	**1–4**	**5–8**	**9–12**	**13+**
ALL	**26.2 (.38)**	**24.7 (.31)**	**26.9 (.27)**	**12.4 (.18)**	**9.7 (.19)**
Sex					
Men	26.2 (.38)	23.2 (.39)	26.0 (.36)	12.6 (.25)	12.0 (.26)
Women	26.4 (.41)	26.4 (.42)	27.9 (.39)	12.0 (.28)	7.2 (.19)
Race/ethnicity					
White	26.9 (.32)	25.2 (.32)	26.2 (.27)	11.8 (.16)	9.8 (.20)
Black	19.4 (.69)	17.3 (1.1)	32.8 (1.1)	21.2 (.89)	9.3 (.45)
Hispanic	19.7 (.98)	22.8 (1.4)	39.0 (1.7)	11.3 (2.2)	7.2 (1.1)
By type of Institution					
Doctoral	31.9 (.51)	24.1 (.39)	25.7 (.44)	9.5 (.21)	8.9 (.24)
Comprehensive	22.8 (.39)	25.6 (.44)	28.5 (.34)	14.1 (.32)	9.0 (.34)
Liberal Arts	19.5 (.65)	26.2 (.80)	21.5 (.78)	15.8 (.58)	17.0 (.77)
Other	26.4 (1.3)	16.4 (1.1)	33.1 (1.5)	14.2 (1.5)	9.9 (.95)
By undergraduate major					
Business	28.2 (.67)	24.9 (.75)	31.3 (.64)	11.9 (.41)	3.8 (.36)
Education	18.3 (.54)	25.3 (.50)	31.0 (.52)	17.0 (.55)	8.3 (.41)
Engineering	45.9 (1.1)	27.0 (1.4)	19.8 (.81)	6.5 (.46)	0.8 (.02)
Physical Sciences	34.2 (1.7)	24.7 (1.6)	30.3 (1.7)	9.2 (.74)	1.7 (.07)
Math/Computer Science	31.3 (1.8)	26.4 (2.2)	29.2 (2.2)	9.5 (.49)	3.7 (.19)
Life Sciences	33.9 (1.0)	26.9 (1.1)	26.6 (.77)	10.6 (.70)	2.0 (.05)
Health	41.9 (1.2)	32.3 (1.2)	23.0 (.77)	2.2 (.20)	0.6 (.20)
Humanities	18.5 (.86)	19.7 (.76)	24.2 (.85)	19.3 (1.2)	18.3 (1.2)
Arts	33.5 (1.4)	26.3 (1.2)	27.1 (1.5)	10.4 (.94)	2.7 (.91)
Social Sciences	16.6 (.57)	17.7 (.47)	22.2 (.69)	13.1 (.50)	30.4 (.67)
Applied Social Sciences	20.9 (.76)	29.7 (.92)	29.5 (.76)	13.8 (.65)	6.1 (.44)
Other	24.2 (2.8)	22.8 (1.5)	24.3 (1.4)	19.1 (1.6)	9.6 (.68)

NOTE: The universe = all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis Files.

Table 3.—Percent of bachelor's degree holders earning college credits in foreign languages courses

	Number of credits				
	0	1–4	5–8	9–12	13+
ALL	**58.4 (.33)**	**12.2 (.25)**	**12.9 (.18)**	**7.2 (.19)**	**9.3 (.18)**
Sex					
Men	64.1 (.48)	11.0 (.30)	10.7 (.22)	7.0 (.27)	7.2 (.24)
Women	51.9 (.45)	13.6 (.40)	15.3 (.30)	7.4 (.26)	11.7 (.31)
Race/ethnicity					
White	58.4 (.33)	12.5 (.26)	12.9 (.18)	7.1 (.20)	9.2 (.19)
Black	62.2 (1.1)	8.8 (.53)	13.2 (.45)	9.4 (.46)	6.5 (.36)
Hispanic	45.7 (1.6)	9.0 (.45)	12.5 (1.0)	8.4 (.70)	24.5 (1.8)
By type of institution					
Doctoral	55.2 (.50)	12.1 (.32)	12.8 (.29)	7.7 (.26)	12.3 (.29)
Comprehensive	63.5 (.42)	11.5 (.33)	12.3 (.24)	6.1 (.26)	6.7 (.26)
Liberal Arts	43.3 (.94)	16.0 (.90)	17.7 (.67)	10.2 (.61)	12.9 (.59)
Other	67.8 (1.5)	13.0 (1.1)	9.6 (.65)	8.4 (1.2)	1.3 (.04)
By undergraduate major					
Business	78.1 (.66)	10.1 (.51)	6.7 (.31)	2.9 (.12)	2.2 (.26)
Education	71.7 (.62)	11.4 (.47)	9.5 (.42)	4.0 (.16)	3.4 (.16)
Engineering	83.7 (1.1)	6.9 (.59)	5.1 (.71)	3.8 (.77)	0.5 (.16)
Physical Sciences	43.9 (2.0)	15.2 (1.6)	15.5 (1.2)	11.9 (.99)	13.4 (.78)
Math/Computer Science	52.4 (2.6)	11.0 (1.1)	16.7 (1.3)	11.2 (1.5)	8.7 (1.7)
Life Sciences	49.0 (1.0)	10.9 (.70)	19.5 (.83)	7.9 (.54)	12.7 (.74)
Health	65.5 (.87)	14.2 (.76)	11.8 (.51)	4.0 (.45)	4.5 (.44)
Humanities	23.7 (.96)	11.5 (1.1)	13.4 (.65)	10.3 (.73)	41.1 (1.1)
Arts	48.5 (1.4)	15.5 (1.3)	16.3 (1.2)	9.3 (.70)	10.5 (.66)
Social Sciences	40.5 (.74)	13.9 (.43)	19.1 (.47)	12.3 (.78)	14.1 (.45)
Applied Social Sciences	57.4 (.88)	12.5 (.74)	13.6 (.77)	8.9 (.39)	7.5 (.61)
Other	35.5 (1.8)	23.2 (1.7)	19.8 (1.4)	11.2 (2.9)	10.4 (.98)

NOTE: The universe=all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis Files.

Table 4.—Percent of bachelor's degree holders earning college credits in English and American literature courses

	Number of credits				
	0	1–4	5–8	9–12	13+
ALL	**39.6 (.38)**	**29.4 (.27)**	**20.6 (.23)**	**5.2 (.15)**	**5.2 (.12)**
Sex					
Men	45.6 (.46)	28.4 (.34)	18.2 (.27)	4.4 (.22)	3.4 (.08)
Women	32.7 (.43)	30.5 (.40)	23.4 (.38)	6.2 (.23)	7.2 (.24)
Race/ethnicity					
White	39.9 (.40)	29.8 (.29)	20.1 (.24)	5.1 (.15)	5.1 (.14)
Black	33.3 (.96)	23.5 (.57)	30.7 (1.1)	6.7 (.40)	5.9 (.50)
Hispanic	43.9 (2.4)	29.9 (.87)	15.9 (.86)	6.6 (2.4)	3.8 (.19)
By type of institution					
Doctoral	42.3 (.51)	29.9 (.41)	17.8 (.32)	4.8 (.20)	5.3 (.14)
Comprehensive	38.4 (.48)	28.2 (.44)	23.0 (.38)	5.6 (.28)	4.8 (.22)
Liberal Arts	31.7 (.69)	33.0 (.77)	20.9 (.79)	6.5 (.44)	7.8 (.50)
Other	44.9 (1.4)	30.7 (1.6)	21.3 (1.2)	2.4 (.08)	0.7 (.72)
By undergraduate major					
Business	43.3 (.75)	30.8 (.70)	22.1 (.61)	3.4 (.29)	0.4 (.01)
Education	31.1 (.58)	30.1 (.56)	28.1 (.64)	6.3 (.24)	4.4 (.28)
Engineering	63.3 (.99)	24.3 (.73)	9.9 (.68)	2.5 (.41)	0.0 —
Physical Sciences	51.4 (1.8)	32.7 (1.8)	10.6 (.92)	5.2 (.59)	0.0 —
Math/Computer Science	43.7 (2.5)	27.4 (2.1)	20.8 (1.9)	2.6 (.13)	5.5 (.29)
Life Sciences	44.6 (.97)	34.5 (.95)	17.1 (.65)	3.0 (.41)	0.8 (.02)
Health	44.0 (.93)	38.1 (.95)	16.3 (.82)	1.1 (.16)	0.6 (.01)
Humanities	17.4 (.95)	13.4 (.81)	9.4 (.58)	8.5 (.82)	51.4 (1.2)
Arts	39.0 (1.4)	28.1 (1.6)	22.7 (1.4)	5.3 (.56)	5.0 (.81)
Social Sciences	39.1 (.84)	29.4 (.62)	21.0 (.54)	8.1 (.43)	2.5 (.17)
Applied Social Sciences	35.1 (1.0)	28.8 (.69)	26.0 (.93)	6.7 (.34)	3.5 (.47)
Other	35.5 (1.8)	25.8 (2.9)	28.6 (2.3)	6.5 (.57)	3.6 (.20)

NOTE: The universe=all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis Files.

Table 5.—Percent of bachelor's degree holders earning college credits in college level math, including statistics courses

	Number of credits				
	0	1–4	5–8	9–12	13+
ALL	**30.8 (.29)**	**21.7 (.23)**	**18.9 (.23)**	**13.9 (.24)**	**14.7 (.21)**
Sex					
Men	20.8 (.30)	18.3 (.26)	20.8 (.31)	18.3 (.34)	21.8 (.31)
Women	42.1 (.46)	25.6 (.38)	16.7 (.31)	9.0 (.26)	6.6 (.23)
Race/ethnicity					
White	30.6 (.30)	21.8 (.24)	18.5 (.22)	14.1 (.26)	15.1 (.22)
Black	30.8 (.94)	23.6 (.89)	24.6 (1.1)	13.0 (.58)	8.0 (.70)
Hispanic	40.1 (2.0)	12.6 (1.1)	20.5 (1.1)	10.2 (.99)	16.7 (.83)
By type of institution					
Doctoral	27.2 (.39)	20.8 (.39)	17.8 (.34)	15.8 (.35)	18.4 (.41)
Comprehensive	33.1 (.43)	22.1 (.35)	20.1 (.37)	13.2 (.29)	11.5 (.29)
Liberal Arts	37.9 (.91)	26.5 (.71)	18.6 (.58)	9.1 (.63)	7.9 (.45)
Other	22.7 (1.3)	16.4 (1.5)	16.6 (1.1)	13.9 (.99)	30.4 (1.4)
By undergraduate major					
Business	4.6 (.31)	13.4 (.47)	25.5 (.52)	35.6 (.62)	21.0 (.61)
Education	47.8 (.68)	28.5 (.70)	17.0 (.45)	4.5 (.27)	2.2 (.19)
Engineering	4.9 (.76)	6.5 (.39)	9.4 (.48)	13.1 (.82)	66.2 (1.2)
Physical Sciences	2.6 (.78)	8.7 (1.1)	16.9 (1.8)	19.1 (1.8)	52.7 (1.9)
Math/Computer Science	0.8 (.04)	1.8 (.09)	1.1 (.06)	2.7 (.69)	93.6 (.70)
Life Sciences	6.9 (.28)	18.5 (.54)	33.4 (.89)	24.1 (1.1)	17.1 (.91)
Health	39.6 (.99)	33.0 (1.1)	20.1 (.79)	5.8 (.27)	1.5 (.09)
Humanities	52.6 (1.2)	25.0 (.98)	14.0 (.70)	3.2 (.13)	5.1 (.71)
Arts	75.3 (1.4)	16.5 (1.4)	6.0 (.47)	1.6 (.06)	0.5 (.02)
Social Sciences	33.4 (.84)	27.8 (.66)	19.8 (.48)	13.0 (.45)	6.0 (.24)
Applied Social Sciences	53.1 (.99)	28.0 (.71)	13.4 (.64)	3.4 (.22)	2.0 (.46)
Other	44.2 (1.7)	19.2 (1.1)	21.7 (1.8)	9.4 (1.7)	5.6 (.60)

NOTE: The universe = all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS-72 Special Analysis Files.

Table 6.—Percent of bachelor's degree holders earning college credits in science and engineering courses

	Number of credits				
	0	**1–4**	**5–8**	**9–12**	**13+**
ALL	**8.9 (.19)**	**13.2 (.28)**	**23.4 (.23)**	**15.1 (.24)**	**39.2 (.28)**
Sex					
Men	7.9 (.23)	12.2 (.31)	21.7 (.31)	13.3 (.32)	44.5 (.43)
Women	10.0 (.27)	14.4 (.48)	25.3 (.36)	17.1 (.38)	33.2 (.34)
Race/ethnicity					
White	8.8 (.19)	13.3 (.30)	23.2 (.24)	14.8 (.25)	39.7 (.29)
Black	10.2 (.59)	9.7 (.31)	26.8 (.77)	19.8 (.91)	33.5 (1.1)
Hispanic	9.4 (1.3)	23.4 (1.9)	23.8 (2.0)	14.4 (.71)	29.1 (1.5)
By type of institution					
Doctoral	7.7 (.26)	11.8 (.41)	20.6 (.39)	14.1 (.41)	45.4 (.41)
Comprehensive	8.9 (.31)	13.4 (.42)	25.9 (.39)	16.9 (.35)	34.8 (.47)
Liberal Arts	13.6 (.60)	17.9 (.61)	27.5 (.91)	13.3 (.46)	27.3 (.74)
Other	11.0 (1.0)	15.0 (1.4)	12.5 (1.4)	6.8 (.70)	54.7 (1.6)
By undergraduate major					
Business	13.0 (.47)	21.4 (.57)	34.2 (.60)	15.8 (.58)	15.6 (.52)
Education	6.1 (.48)	13.2 (.42)	27.8 (.58)	25.5 (.53)	27.5 (.64)
Engineering	1.3 (.33)	2.6 (.05)	2.9 (.06)	2.5 (.05)	89.5 (.36)
Physical Science	0.0 —	0.0 —	0.0 —	1.3 (1.2)	98.7 (1.2)
Math/Computer Science	5.4 (.28)	7.7 (.92)	18.2 (1.8)	11.4 (1.2)	57.3 (1.8)
Life Sciences	0.0 —	0.0 —	0.9 (.02)	0.6 (.15)	97.2 (.16)
Health	1.2 (.03)	3.8 (.33)	8.5 (1.2)	5.2 (.26)	81.3 (1.1)
Humanities	16.0 (1.1)	20.0 (.86)	30.1 (.99)	20.0 (1.2)	13.9 (.53)
Arts	27.0 (1.2)	21.4 (1.6)	29.0 (1.7)	14.2 (.71)	8.5 (1.0)
Social Sciences	11.2 (.48)	15.9 (.79)	29.4 (.67)	20.2 (.63)	23.2 (.54)
Applied Social Sciences	9.7 (.60)	17.2 (.68)	31.7 (.83)	20.0 (.83)	21.4 (.73)
Other	12.3 (.69)	11.1 (1.4)	25.4 (1.6)	5.9 (.51)	45.4 (2.9)

NOTE: The universe=all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis Files.

Table 7.—Percent of bachelor's degree holders earning college credits in Minority and Women's Studies courses

	Number of credits			
	0	1–4	5–8	9+
ALL	**82.0 (.23)**	**12.9 (.21)**	**2.9 (.09)**	**2.2 (.10)**
Sex				
Men	87.2 (.30)	9.7 (.26)	1.9 (.10)	1.2 (.15)
Women	76.0 (.31)	16.6 (.30)	4.1 (.15)	3.4 (.14)
Race/ethnicity				
White	84.3 (.22)	12.3 (.21)	2.4 (.09)	1.1 (.09)
Black	50.0 (1.0)	22.1 (1.1)	11.6 (.58)	16.3 (.61)
Hispanic	61.7 (2.3)	17.2 (1.6)	3.9 (.68)	17.2 (1.8)
By type of institution				
Doctoral	83.6 (.30)	11.8 (.25)	2.4 (.10)	2.2 (.13)
Comprehensive	79.5 (.43)	14.4 (.36)	3.6 (.13)	2.5 (.19)
Liberal Arts	82.1 (.79)	14.1 (.76)	2.2 (.22)	1.6 (.23)
Other	93.9 (1.1)	4.5 (.93)	1.3 (.69)	0.4 (.20)
By undergraduate major				
Business	91.3 (.43)	6.9 (.45)	1.4 (.15)	0.5 (.01)
Education	84.7 (.35)	12.1 (.35)	1.8 (.07)	1.4 (.21)
Engineering	95.7 (.39)	3.6 (.39)	0.3 (.01)	0.3 (.01)
Physical Sciences	88.8 (.96)	7.9 (.93)	0.3 (.01)	3.0 (.13)
Math/Computer Science	88.1 (.88)	9.6 (.49)	2.3 (.72)	0.0 —
Life Sciences	90.1 (.54)	7.8 (.53)	1.6 (.04)	0.5 (.01)
Health	90.4 (.60)	7.4 (.57)	1.8 (.21)	0.4 (.01)
Humanities	71.1 (.86)	21.9 (.92)	4.6 (.36)	2.5 (.36)
Arts	85.6 (1.3)	9.2 (.82)	5.0 (.70)	0.3 (.01)
Social Sciences	64.3 (.66)	22.3 (.69)	6.6 (.34)	6.8 (.38)
Applied Social Sciences	71.0 (.99)	21.6 (.75)	3.4 (.23)	4.1 (.62)
Other	83.2 (1.5)	14.5 (1.6)	2.3 (.13)	0.0 —

NOTE: The universe=all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis Files.

Table 8.—Percent of bachelor's degree holders earning college credits in Non-Western Culture and Society courses

	Number of credits			
	0	1–4	5–8	9+
ALL	**82.1 (.23)**	**12.0 (.20)**	**3.2 (.11)**	**2.7 (.08)**
Sex				
Men	82.4 (.32)	11.9 (.26)	2.9 (.12)	2.8 (.15)
Women	81.8 (.35)	12.1 (.30)	3.5 (.15)	2.6 (.08)
Race/ethnicity				
White	82.9 (.25)	11.6 (.21)	3.1 (.11)	2.5 (.09)
Black	74.0 (.80)	14.9 (.54)	5.5 (.40)	5.6 (.17)
Hispanic	66.3 (1.7)	24.9 (1.6)	3.8 (.19)	4.9 (.67)
By type of institution				
Doctoral	80.7 (.32)	12.9 (.33)	2.9 (.15)	3.5 (.15)
Comprehensive	83.6 (.38)	11.0 (.33)	3.4 (.15)	2.0 (.10)
Liberal Arts	77.2 (.66)	16.2 (.67)	3.7 (.20)	2.9 (.06)
Other	91.0 (1.0)	4.4 (.77)	2.8 (.09)	1.9 (.76)
By undergraduate major				
Business	89.7 (.52)	8.4 (.44)	1.1 (.19)	0.8 (.20)
Education	89.5 (.30)	8.6 (.25)	1.2 (.14)	0.7 (.09)
Engineering	94.5 (.48)	5.3 (.47)	0.0 —	0.2 (.01)
Physical Sciences	83.6 (1.1)	14.2 (1.1)	1.6 (.07)	0.6 (.02)
Math/Computer Science	82.7 (1.8)	11.0 (1.5)	4.5 (1.2)	1.8 (.10)
Life Sciences	86.8 (.74)	10.5 (.73)	1.8 (.04)	0.8 (.25)
Health	92.9 (.59)	5.7 (.58)	0.9 (.15)	0.5 (.01)
Humanities	70.6 (1.2)	15.2 (1.6)	7.0 (.19)	4.4 (.60)
Arts	79.6 (1.5)	15.2 (1.6)	4.5 (.17)	0.8 (.03)
Social Sciences	59.3 (.60)	21.6 (.62)	8.6 (.54)	10.6 (.35)
Applied Social Sciences	83.9 (.73)	12.1 (.72)	3.5 (.16)	0.6 (.32)
Other	89.5 (1.1)	7.7 (1.2)	0.6 (.03)	2.2 (.12)

NOTE: The universe=all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis Files.

Table 9.—Percent of bachelor's degree holders earning college credits in Basic Western Culture and Society courses

	Number of credits				
	0	**1–4**	**5–8**	**9–12**	**13+**
ALL	**19.7 (.30)**	**22.5 (.27)**	**24.7 (.29)**	**20.7 (.25)**	**12.4 (.18)**
Sex					
Men	19.6 (.33)	23.1 (.35)	24.6 (.37)	19.9 (.33)	12.8 (.28)
Women	19.8 (.41)	21.7 (.42)	24.8 (.43)	21.7 (.37)	12.0 (.24)
Race/ethnicity					
White	19.9 (.32)	23.0 (.27)	24.8 (.30)	20.4 (.28)	11.9 (.19)
Black	17.2 (.59)	14.4 (1.1)	22.2 (.69)	25.2 (.93)	21.0 (.96)
Hispanic	15.6 (.78)	19.7 (1.2)	27.8 (1.8)	22.3 (1.8)	14.5 (1.4)
By type of institution					
Doctoral	24.5 (.55)	21.6 (.42)	23.8 (.40)	18.2 (.42)	11.9 (.28)
Comprehensive	15.5 (.33)	22.1 (.46)	25.7 (.48)	23.4 (.35)	13.4 (.29)
Liberal Arts	17.4 (.72)	26.8 (.77)	21.6 (.75)	21.8 (.64)	12.6 (.69)
Other	25.1 (1.2)	25.3 (1.2)	30.1 (1.5)	13.1 (1.3)	6.4 (.78)
By undergraduate major					
Business	17.6 (.59)	22.2 (.78)	28.7 (.67)	22.4 (.50)	9.2 (.38)
Education	12.4 (.52)	19.3 (.60)	24.3 (.52)	28.1 (.57)	16.1 (.49)
Engineering	34.1 (1.2)	31.6 (1.1)	20.3 (.85)	10.7 (.49)	3.3 (.17)
Physical Sciences	27.8 (1.7)	30.6 (1.1)	24.7 (1.6)	13.4 (1.2)	3.6 (.58)
Math/Computer Science	30.7 (1.8)	24.3 (2.0)	22.7 (2.3)	16.4 (1.3)	5.9 (.30)
Life Sciences	26.1 (.83)	23.8 (1.0)	26.1 (.93)	19.3 (.70)	4.7 (.31)
Health	33.4 (1.1)	28.6 (.94)	24.5 (1.2)	11.3 (.55)	2.2 (.16)
Humanities	14.1 (.93)	16.8 (.74)	21.6 (1.2)	22.7 (1.1)	24.9 (.83)
Arts	28.2 (1.2)	27.5 (1.4)	22.2 (1.6)	13.5 (1.2)	8.6 (.80)
Social Sciences	12.5 (.46)	20.3 (.55)	23.3 (.62)	20.3 (.48)	23.6 (.54)
Applied Social Sciences	16.2 (.65)	19.4 (.84)	27.1 (.65)	26.3 (.79)	11.0 (.55)
Other	26.4 (2.8)	18.4 (1.3)	21.1 (1.3)	25.7 (1.5)	8.4 (.74)

NOTE: The universe=all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis Files.

Table 10.—Percent of bachelor's degree holders earning college credits in Advanced Western Culture and Society courses

	Number of credits				
	0	**1–4**	**5–8**	**9–12**	**13+**
ALL	**23.4 (.27)**	**23.6 (.21)**	**17.9 (.21)**	**13.7 (.21)**	**21.5 (.22)**
Sex					
Men	26.1 (.36)	24.9 (.32)	17.1 (.28)	11.6 (.29)	20.2 (.27)
Women	20.2 (.38)	22.1 (.29)	18.7 (.28)	16.1 (.38)	17.0 (.36)
Race/ethnicity					
White	23.2 (.28)	23.2 (.22)	17.6 (.23)	14.0 (.22)	22.1 (.24)
Black	26.6 (.76)	30.5 (1.0)	20.9 (1.1)	9.2 (.47)	12.9 (.63)
Hispanic	21.2 (1.9)	22.8 (1.3)	23.9 (1.2)	15.1 (2.4)	17.0 (.83)
By type of institution					
Doctoral	24.9 (.46)	24.6 (.38)	17.4 (.27)	12.5 (.25)	20.6 (.31)
Comprehensive	23.2 (.37)	25.3 (.33)	18.0 (.35)	15.3 (.31)	18.3 (.39)
Liberal Arts	12.1 (.45)	11.5 (.35)	20.6 (.68)	13.1 (.64)	42.8 (.96)
Other	36.1 (1.5)	21.2 (1.4)	14.5 (1.2)	10.0 (.60)	18.3 (1.5)
By undergraduate major					
Business	31.7 (.65)	32.7 (.64)	19.7 (.56)	11.1 (.46)	4.7 (.36)
Education	24.0 (.49)	26.6 (.59)	19.9 (.50)	16.7 (.43)	12.8 (.46)
Engineering	49.0 (1.1)	27.6 (1.0)	12.6 (.98)	6.4 (.67)	4.5 (.52)
Physical Sciences	32.2 (1.8)	26.2 (1.6)	18.7 (1.6)	13.4 (1.3)	9.5 (1.3)
Math/Computer Science	26.7 (1.7)	19.9 (1.6)	25.5 (2.4)	13.3 (.68)	14.5 (1.3)
Life Sciences	31.4 (1.1)	25.7 (.96)	21.4 (.66)	13.4 (.66)	8.1 (.64)
Health	36.4 (1.2)	33.2 (1.0)	18.1 (.71)	9.0 (.90)	3.4 (.23)
Humanities	1.0 (.17)	0.9 (.02)	3.1 (.50)	6.8 (.28)	88.3 (.59)
Arts	9.3 (1.0)	11.0 (.90)	16.6 (1.0)	19.5 (1.1)	43.6 (1.4)
Social Sciences	8.9 (.42)	15.9 (.52)	17.8 (.63)	17.6 (.57)	39.8 (.66)
Applied Social Sciences	18.9 (.81)	26.2 (.82)	20.6 (.68)	19.5 (.57)	14.7 (.69)
Other	15.9 (.89)	17.1 (1.8)	15.0 (1.2)	3.4 (.70)	48.7 (2.3)

NOTE: The universe=all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics, NLS–72 Special Analysis File.

Table 11.—Percent of bachelor's degree holders earning college credits in General or Indeterminate* Culture and Society: Humanities and Arts

	Number of credits				
	0	1–4	5–8	9–12	13+
ALL	**33.2 (.33)**	**30.5 (.27)**	**19.7 (.23)**	**11.8 (.23)**	**4.8 (.16)**
Sex					
Men	33.6 (.45)	30.4 (.36)	19.2 (.28)	11.4 (.26)	5.3 (.23)
Women	32.8 (.46)	30.6 (.45)	20.3 (.37)	12.1 (.39)	4.2 (.17)
Race/ethnicity					
White	33.4 (.34)	30.3 (.30)	19.9 (.25)	11.7 (.25)	4.7 (.14)
Black	28.4 (.98)	34.4 (1.6)	18.9 (.73)	14.0 (.71)	4.3 (.23)
Hispanic	40.8 (2.1)	30.7 (1.9)	12.5 (.62)	7.0 (.35)	9.0 (3.7)
By type of institution					
Doctoral	37.8 (.48)	30.4 (.43)	18.5 (.35)	9.6 (.33)	3.8 (.16)
Comprehensive	30.1 (.45)	32.1 (.43)	19.9 (.32)	12.8 (.26)	5.1 (.30)
Liberal Arts	21.4 (.78)	24.9 (.71)	25.7 (.87)	18.7 (.68)	9.3 (.38)
Other	51.5 (1.9)	25.3 (1.0)	15.6 (1.4)	6.2 (1.5)	1.4 (.95)
By undergraduate major					
Business	42.2 (.62)	33.4 (.67)	15.2 (.40)	8.0 (.41)	1.2 (.15)
Education	33.2 (.68)	32.4 (.64)	20.5 (.49)	10.2 (.44)	3.8 (.20)
Engineering	55.1 (1.4)	30.0 (1.3)	11.8 (.45)	3.0 (.06)	0.0 —
Physical Sciences	36.2 (2.1)	38.8 (2.5)	16.1 (1.1)	8.4 (.51)	0.5 (.02)
Math/Computer Science	30.6 (1.8)	34.9 (1.9)	21.4 (2.3)	10.1 (1.6)	3.1 (.16)
Life Sciences	44.4 (1.2)	31.0 (1.0)	13.9 (.46)	9.3 (.77)	1.3 (.27)
Health	46.3 (1.1)	29.3 (1.2)	15.0 (.86)	7.1 (.70)	2.3 (.73)
Humanities	17.0 (.90)	23.7 (.87)	24.6 (1.1)	17.2 (.70)	17.5 (1.0)
Arts	22.3 (1.3)	23.5 (1.3)	22.1 (1.3)	21.1 (1.5)	11.1 (1.2)
Social Sciences	16.0 (.71)	28.4 (.62)	26.4 (.64)	20.2 (.54)	8.9 (.48)
Applied Social Sciences	28.2 (.82)	34.2 (1.0)	24.1 (.79)	10.3 (.55)	3.2 (.22)
Other	39.2 (1.4)	17.9 (1.5)	22.9 (2.4)	11.6 (1.2)	8.5 (1.5)

NOTE: The universe=all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics: NLS–72 Special Analysis Files.

* "Indeterminate" means that a course category could not be assigned, with certainty, to one of the other clusters.

Table 12.—Percent of bachelor's degree holders earning college credits in General or Indeterminate * Culture and Society courses: social sciences

	Number of credits				
	0	**1–4**	**5–8**	**9–12**	**13+**
ALL	**25.6 (.25)**	**27.7 (.26)**	**21.1 (.26)**	**14.7 (.17)**	**10.9 (.17)**
Sex					
Men	31.7 (.37)	26.8 (.35)	19.1 (.33)	13.0 (.22)	9.4 (.20)
Women	18.6 (.43)	28.9 (.40)	23.5 (.42)	16.5 (.29)	12.5 (.28)
Race/ethnicity					
White	25.8 (.28)	27.9 (.28)	21.2 (.28)	14.6 (.18)	10.6 (.18)
Black	20.6 (.84)	27.1 (1.1)	21.3 (.78)	16.4 (.60)	14.6 (.16)
Hispanic	33.3 (2.0)	22.4 (.97)	15.1 (.86)	12.8 (.94)	16.5 (1.8)
By type of institution					
Doctoral	24.6 (.37)	28.2 (.44)	21.2 (.45)	13.8 (.31)	12.2 (.30)
Comprehensive	24.6 (.47)	27.5 (.36)	21.0 (.43)	16.0 (.28)	11.0 (.29)
Liberal Arts	26.1 (.82)	28.5 (.82)	23.5 (.86)	14.1 (.54)	8.0 (.27)
Other	48.7 (1.6)	23.4 (1.1)	16.5 (.97)	8.6 (.86)	2.9 (.76)
By undergraduate major					
Business	38.7 (.72)	35.7 (.64)	18.1 (.53)	6.2 (.43)	1.3 (1.3)
Education	8.5 (.72)	31.7 (.65)	30.5 (.68)	20.5 (.43)	8.9 (.39)
Engineering	56.4 (1.2)	25.9 (1.0)	10.3 (.57)	3.8 (.52)	3.6 (.07)
Physical Science	44.0 (1.8)	25.6 (1.5)	18.5 (1.7)	7.1 (1.4)	4.9 (.20)
Math/Computer Science	42.8 (2.0)	26.2 (1.6)	15.5 (1.5)	12.0 (1.0)	3.5 (1.5)
Life Science	40.8 (.96)	32.7 (.92)	17.6 (.89)	7.6 (.49)	1.3 (.34)
Health	36.5 (.96)	32.2 (1.0)	17.3 (1.3)	9.7 (.43)	4.3 (.39)
Humanities	17.8 (.95)	31.1 (.98)	21.6 (.95)	17.4 (.93)	12.2 (.71)
Arts	33.2 (1.4)	30.1 (1.6)	25.8 (1.3)	8.2 (.55)	2.5 (.10)
Social Science	7.7 (.51)	16.4 (.44)	21.8 (.66)	23.7 (.66)	30.5 (.64)
Applied Social Science	8.3 (.70)	18.1 (.80)	23.2 (1.0)	27.3 (.67)	23.1 (.72)
Other	42.2 (2.2)	27.9 (1.7)	17.1 (1.0)	9.0 (1.2)	3.6 (.20)

* "Indeterminate" means that a course category could not be assigned, with certainty, to one of the other clusters.

NOTE: The universe=all students from the High School Class of 1972 who received a bachelor's degree by 1984. N=5,127. Weighted N=732,511. Rows may not add to 100 due to rounding. Standard errors are in parentheses.

SOURCE: U.S. Department of Education, National Center for Education Statistics: NLS–72 Special Analysis Files.

Table 13.—Course-taking by institutional type: selected cases in three cultural literacy course clusters

	Doctoral	Comprehensive	Liberal Arts	Community College	Other
All Courses	29.4%	36.0%	6.1%	22.0%	6.5%
Minority/Women's Studies					
Black Studies	**37.9***	42.1	**7.6**	11.0	1.3
Native American Studies	34.7	**46.9**	4.2	13.8	0.4
Hispan American Studies	22.5	**47.6**	1.5	26.9	1.5
African-American Literature	24.7	**43.8**	**10.3**	17.1	4.1
African-American History	21.4	**45.1**	7.0	24.9	1.6
Sociology of Race	26.9	**47.8**	**8.8**	15.3	1.1
Women's Studies	35.9	42.3	6.2	14.7	1.0
African-American Music	**39.5**	44.2	**11.6**	4.7	0.0
Non-Western Culture and Society					
Latin American Studies	**45.3**	34.3	**7.7**	11.6	1.1
Chinese: Elementary/Intermediate	**49.5**	26.3	**9.5**	2.1	**12.6**
Japanese: Elementary/Intermediate	**62.3**	13.2	7.6	17.0	0.0
Comparative Literature: Non-Western	27.7	40.4	**17.0**	12.8	2.1
Economic Development	**50.8**	29.5	**13.1**	3.3	3.3
African History	36.7	36.7	**14.3**	11.2	1.0
Non-Western Government	**58.8**	32.4	5.9	0.6	2.4
Non-Western Art	**40.6**	19.8	**19.8**	12.9	6.9
Non-Western Religion	36.5	38.9	19.1	4.8	0.8
Advanced Western Culture and Society					
Russian: Advanced/Literature	**78.3**	13.2	**8.5**	0.0	0.0
Classical Literature	**47.1**	36.3	**12.9**	3.7	0.0
Shakespeare	**42.0**	38.1	**10.9**	8.4	0.5
Contemporary Philosophy	36.1	42.2	**16.9**	3.6	1.2
Geography of Anglo-America	35.5	**48.8**	2.3	13.0	0.3
U.S. Intellectual/Cultural History	**42.5**	35.5	**13.2**	4.8	4.0
European Government & Politics	**43.2**	**45.9**	**9.6**	0.7	0.7
Music History: Classical	**40.0**	36.8	**15.5**	2.3	5.5
Bible Studies	8.0	30.3	**25.5**	7.0	**29.2**

* Percentages in bold indicate cases in which the share of enrollments exceeds the mean for that institutional type by 25% or more.

SOURCE: Adelman, C., *A College Course Map: Taxonomy and Transcript Data.* Washington, D.C.: U.S. Department of Education, 1990, pp. 171–240.

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